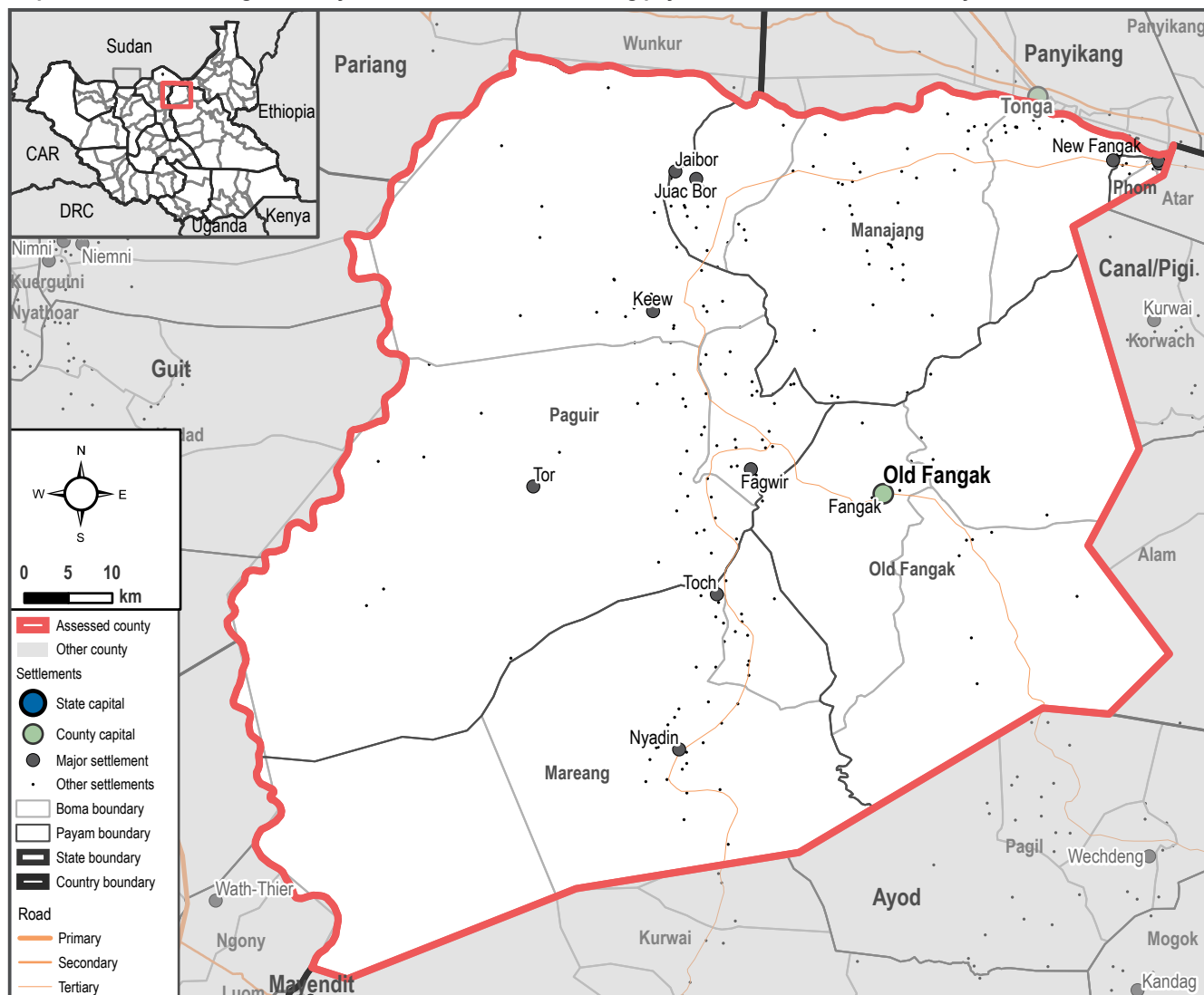




FANGAK COUNTY - JONGLEI STATE

Map 0.1. Location of Fangak County within South Sudan indicating payams, boma boundaries and key settlements



FANGAK COUNTY - KEY FACTS

- Estimated population: **223,000¹**
- Area: **7,655 km²**
- Population density: **25 persons per km²**
- County headquarters: **New Fangak**
- Payams: **Manajang, Mareang, Old Fangak, Paguir, Phom**

Fangak county is located in the northwest of Jonglei state and is bordered by the White Nile to the north and west. The population is concentrated in the central strip and to the northeast. The Sudd wetlands in the west flood seasonally, although exceptionally high flows upstream on the Nile have led to major flooding across most of the county in the past three years. This has resulted in largescale displacement to higher grounds, the towns of Old and New Fangak and further north towards Sudan.²

Since 2013, sub-national conflict and recurrent episodes of localised violence across the state have also led to widespread displacement into and within Fangak county, placing additional pressure on already scarce resources.³ Infrastructure, markets and community services remain limited throughout the county and services are disrupted by flooding, conflict and poor access, with the wetlands presenting a major physical barrier to movement.⁴

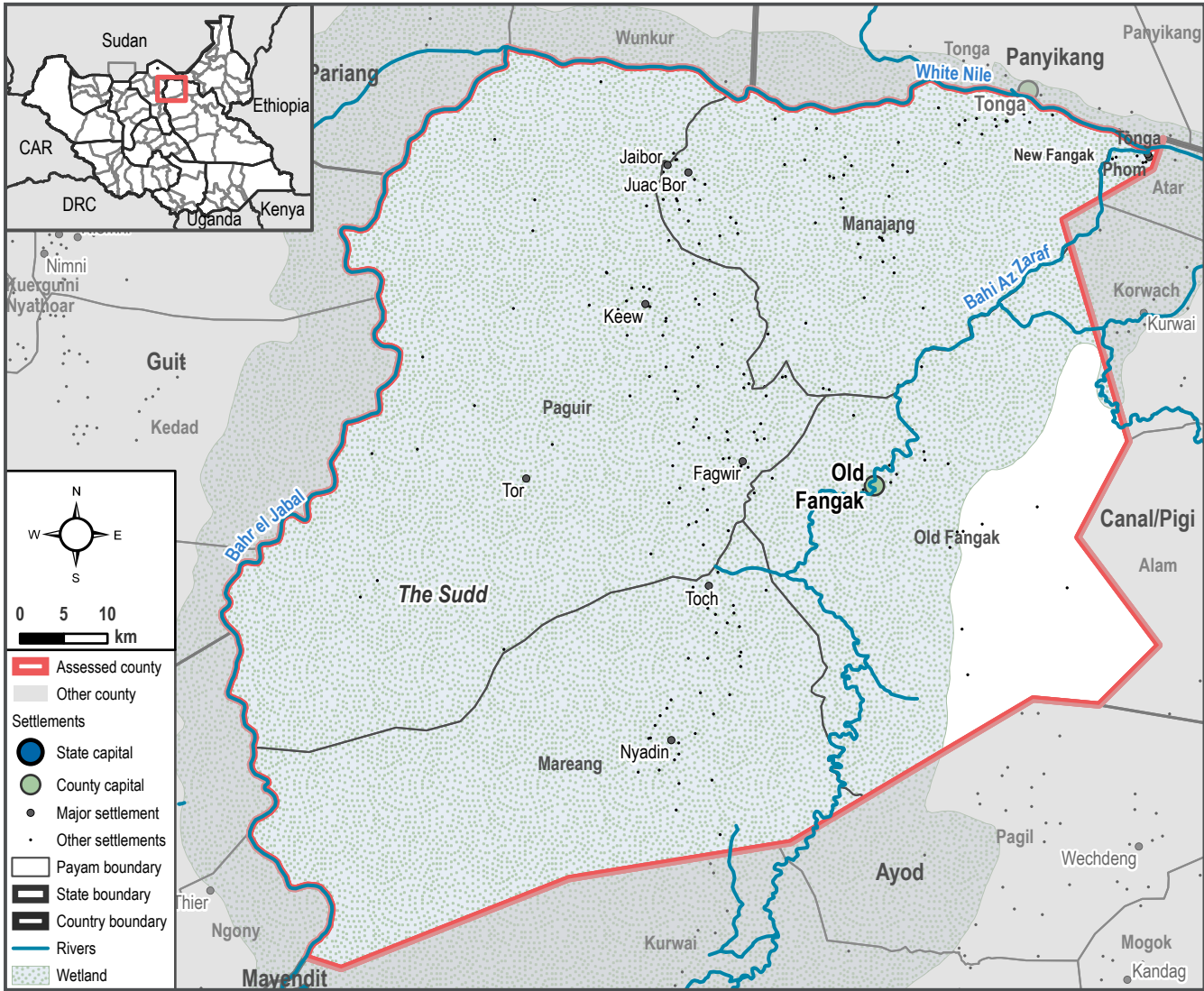
About REACH Initiative

REACH Initiative facilitates the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development contexts. The methodologies used by REACH include primary data collection and in-depth analysis, and all activities are conducted through inter-agency aid coordination mechanisms. REACH is a joint initiative of IMPACT Initiatives, ACTED and the United Nations Institute for Training and Research - Operational Satellite Applications Programme (UNITAR-UNOSAT).

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1. CLIMATE AND ENVIRONMENT

Map 1.1. Natural features including wetland areas, rivers and water bodies in Fangak County



Highest point
434 m

Average elevation
401 m
Elevation range
51 m

Annual precipitation
809 mm/yr
Average temperature
28.3°C

Wettest month
August
Driest months
Dec-Feb

FANGAK COUNTY

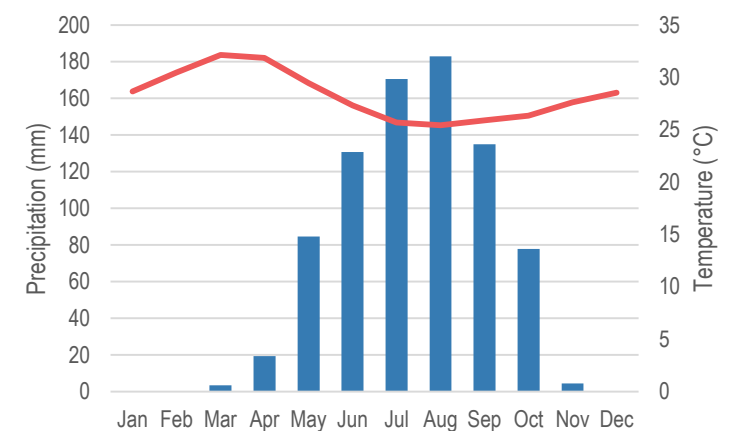
The topography of Fangak county is relatively flat, with an average elevation of 401 metres above sea level and limited elevation range.⁵ The Bahr el Jabal, a section of the main White Nile river, forms the western and northern boundary of the county. Surrounding this river channel, the western part of the country is characterised by the **seasonally flooded wetlands of the Nile river basin, an area known as the Sudd**. Tall reeds and grasses, such as papyrus, and bush scrub dominate the landscape, with high clay soils adjacent to the river, and sandy loam further to the east.⁶

The **Sudd wetland is the largest wetland in Africa and one of the largest freshwater ecosystems in the world**. It is a biodiverse region with various endangered mammalian species, antelope migrations, millions of Palearctic migratory birds and large fish populations.⁷

Elevation increases gradually towards the plains in the east of the county, with some small areas of marginally higher ground. The Bahi Az Zaraf, an arm of the White Nile, runs through this area. Black cotton soils and sandy clay soils are dominant in this part of the county, whilst vegetation is dominated by dense acacia thickets, shrubs, and savanna grasslands.⁸

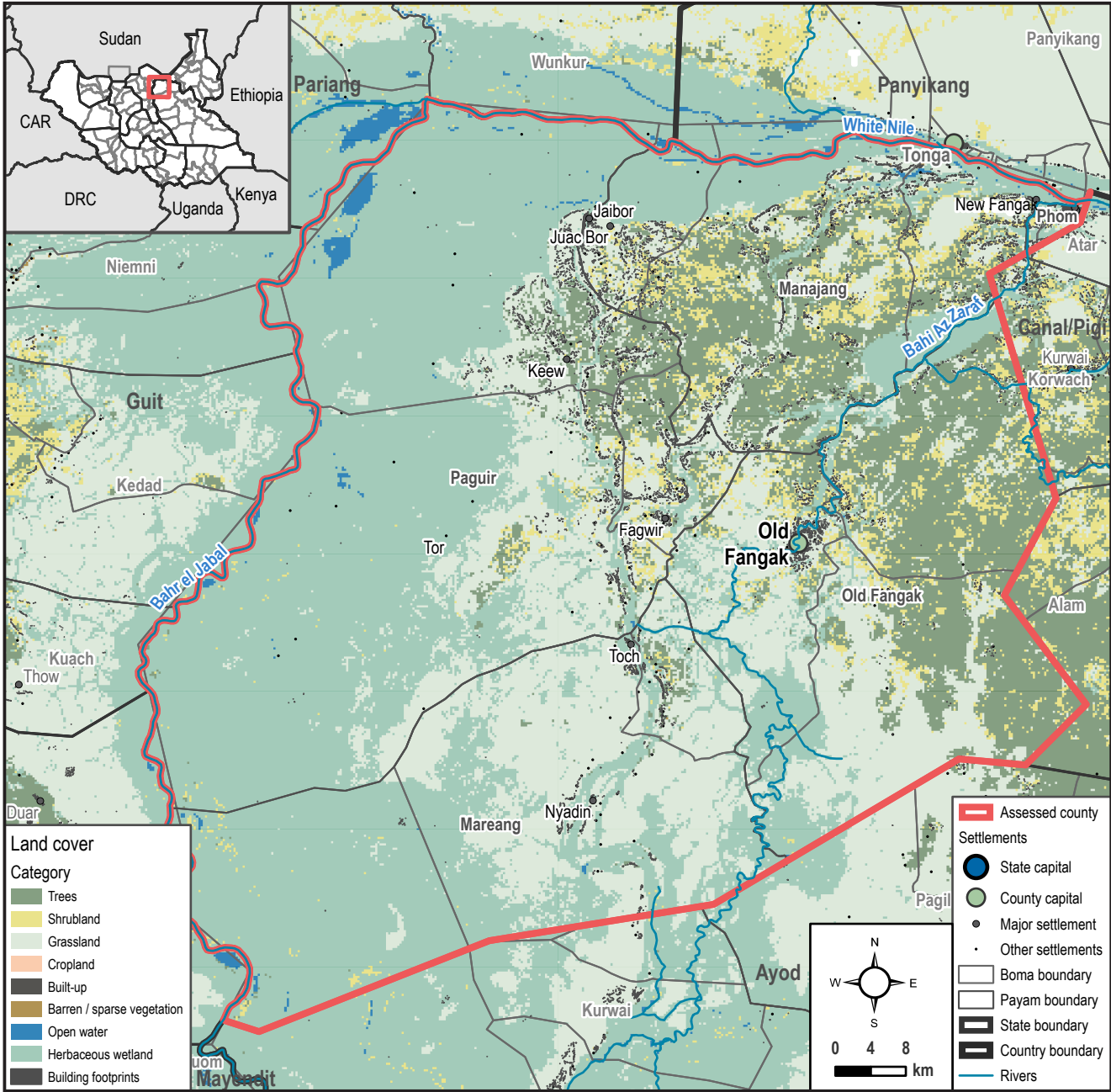
The county receives a large amount of rainfall, totalling 809 mm/year on average, with atypically high rainfall in the past 3 years. There are two distinct seasons, with the rainy season generally lasting between May and October. August is the wettest month, whilst December to February are the driest months, receiving almost no rainfall on average.⁹

Graph 1.1. Average monthly precipitation and temperature, Fangak County (1981 - 2021)^{10,11}



2. LAND USE AND LAND COVER

Map 2.1. Land use and land cover map, Fangak County¹³



FANGAK COUNTY

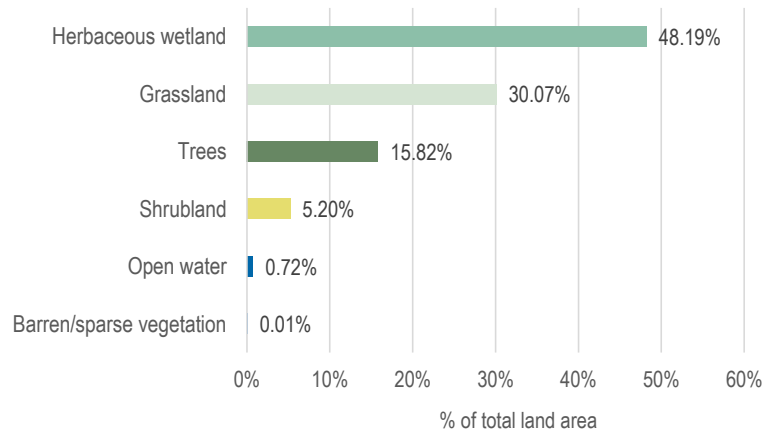
Almost half of the land cover in Fangak county is herbageous wetland - predominantly in the west and north along the banks of the White Nile (Bahr el Jabal), as well as around the Bahi Az Zaraf. This area is relatively uninhabited, with very few buildings in this area (Map 2.1).

As mentioned, the wetland zone makes up the northern part of the Sudd, the largest wetland system in Africa. The Sudd is characterised by **seasonal expansion, usually between July and November each year**, leading to flooding on an annual basis. However, exceptional flooding can occur as explained in section 4.

In the centre and east of the county, there are more trees and shrublands. **This area also has the most dense concentration of buildings.** The Food and Agricultural Organisation of the United Nations (UN FAO) Land Cover Atlas of South Sudan¹² estimates that around **8% of the county is made up of agricultural land.**

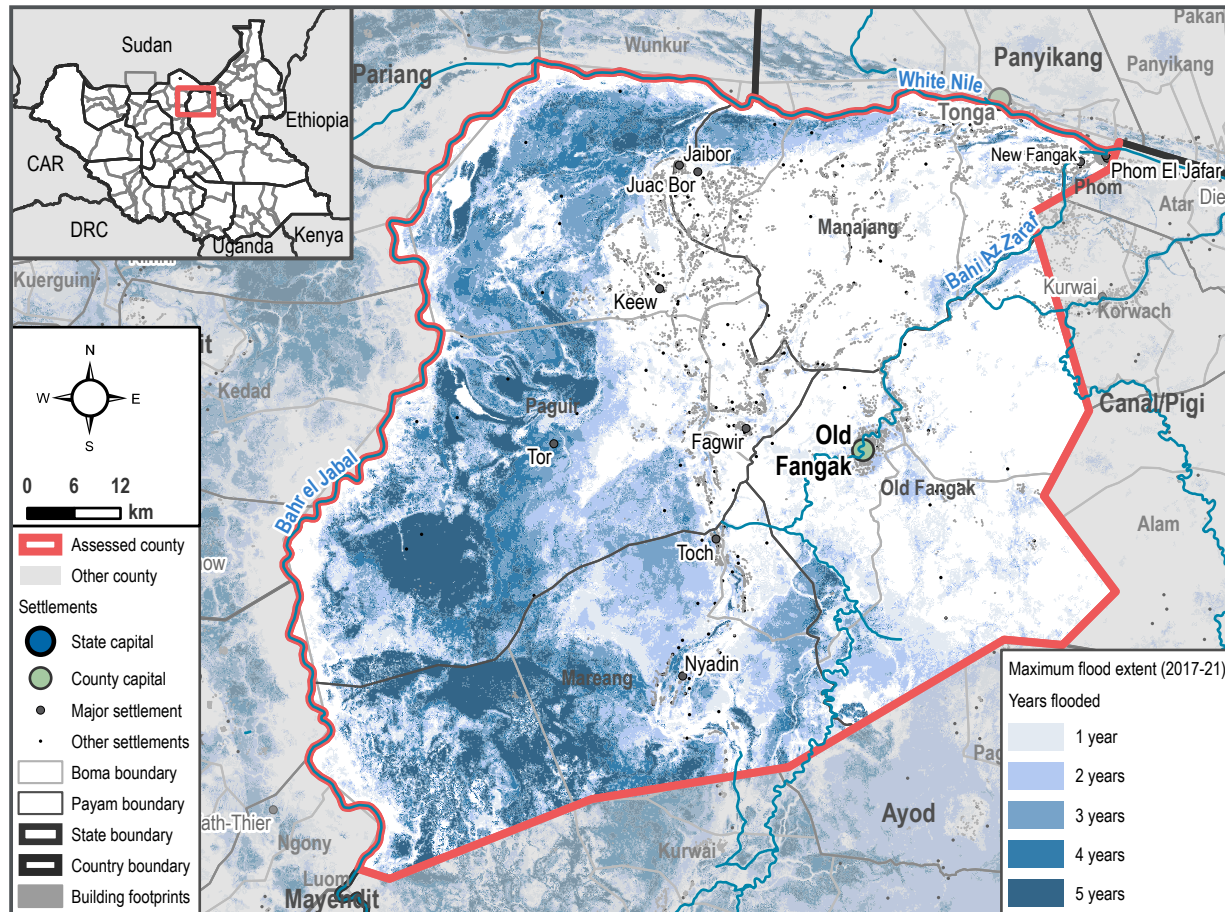
 **40,922 identified buildings in Fangak county¹⁴**

Chart 2.1. Land cover as proportion of Fangak county area

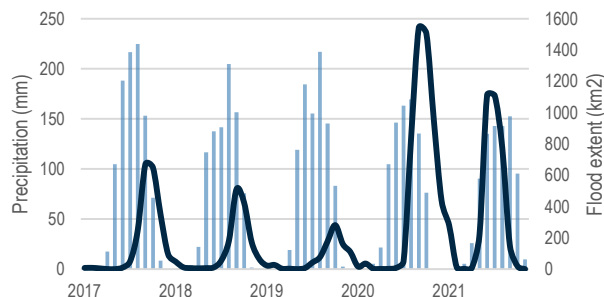


3. HYDROMETEOROLOGICAL HAZARDS - FLOODING

Map 3.1. Estimated maximum annual flood extent (2017-2021), affected settlements and key infrastructureⁱ



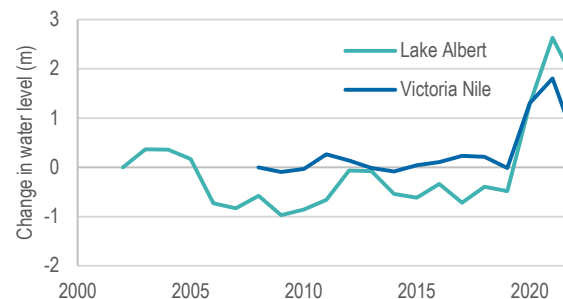
Graph 3.1. Area of flood extent vs rainfall (2017-21)¹⁹



ⁱ Estimated flood extent calculated based on analysis of [Sentinel 1 data in Google Earth Engine](#). Data is indicative only and has not been validated in the field.

ⁱⁱ Water level change calculated from [DAHITI](#) altimetry data for Lake Albert (ref. 85) and Victoria Nile (ref. 2264). Shows change in water level in metres from first year of data availability.

Graph 3.2. Changes in water levelsⁱⁱ upstream, Nile Basin²⁰



FANGAK COUNTY

FLOODING

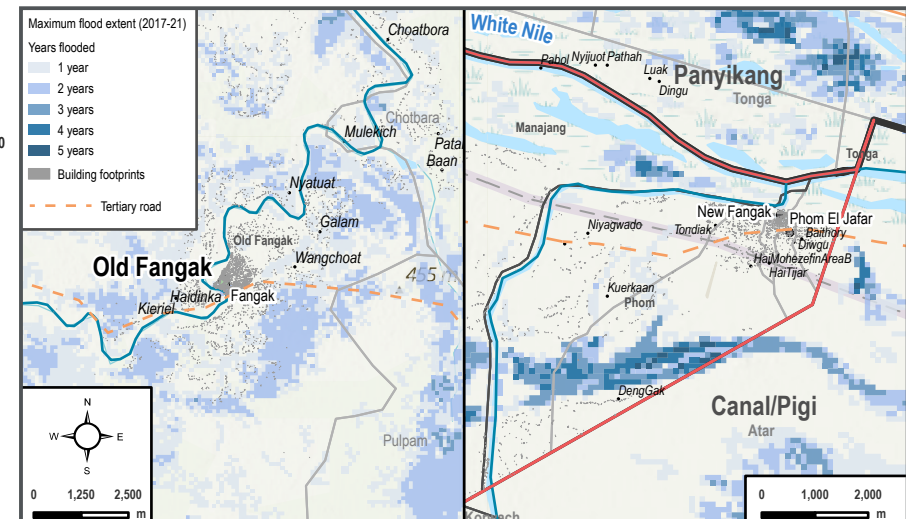
Land cover in the western and northern areas of Fangak county is predominantly characterised by herbaceous wetland (see Map 2.1). This area makes up part of the Sudd wetland zone, which expands seasonally, leading to annual flooding between July and November. **However, atypical flooding has occurred particularly in the past three consecutive years, spreading to the more populated areas in the east of the county.** Map 3.1 and 3.2 show the maximum estimated flood extent in the past five years.

Unseasonal flooding also occurred in January 2021 (Graph 3.1), indicating that **rainfall is not the only driver of flooding** in the region. As Graph 3.2 shows, water levels increased significantly upstream on the Nile in 2020 and into 2021¹⁵, leading to **greater influx of water into the Sudd wetlands and contributing to the exceptional flooding during these years.**¹⁶

According to key informants and focus group discussion participants interviewed by REACH in June 2021, the **last time flooding occurred at a similar scale was between 1962 and 1970**. The flooding reportedly resulted in **displacement into Old and New Fangak towns**, as well as populations concentrating on higher ground across the county, whilst some have moved further towards Sudan.¹⁷

The towns of Old and New Fangak are protected by dykes, which are used by both individual households and humanitarian actors, but they remain in **poor condition**, whilst **capacity to build and repair them is reportedly limited.**¹⁸

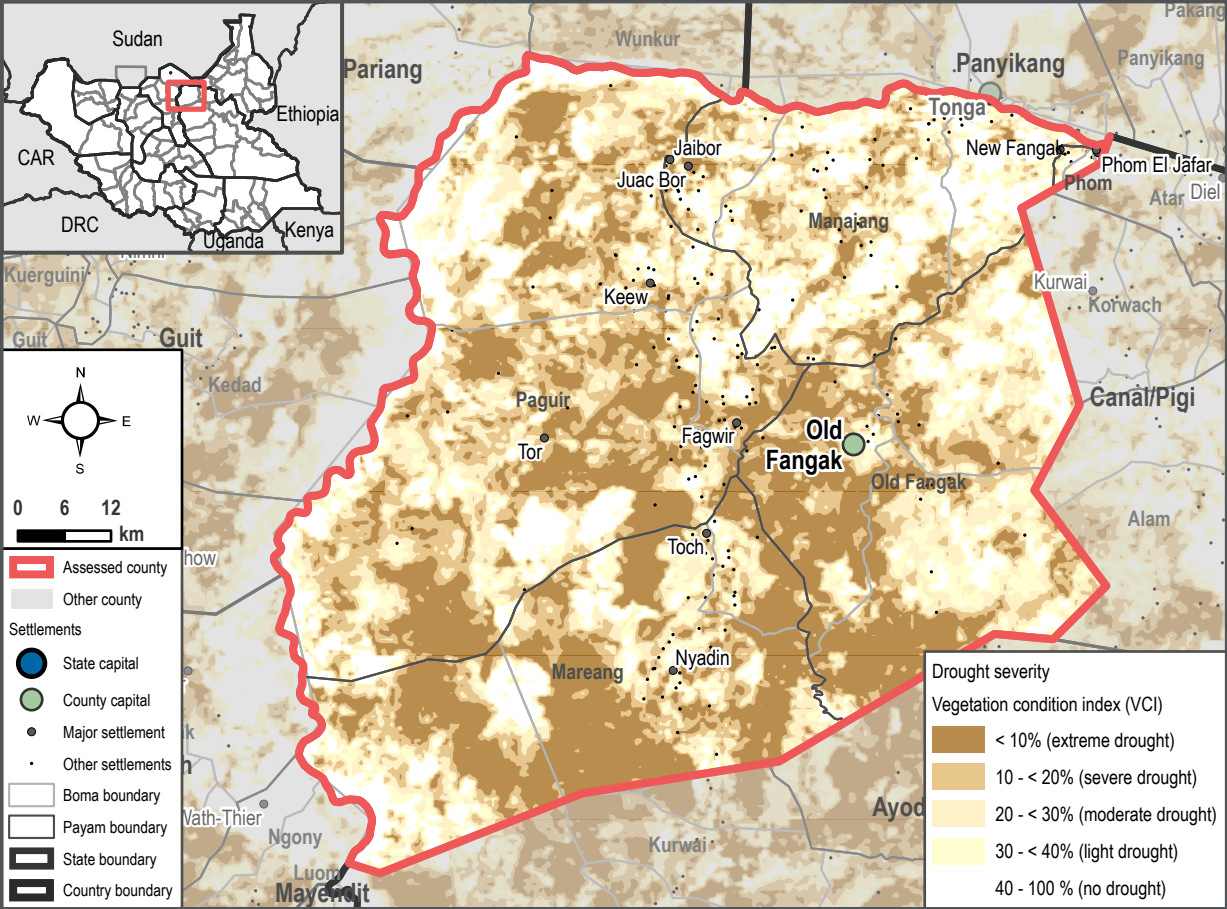
Map 3.2. Estimated maximum annual flood extent (2017-21), key settlements



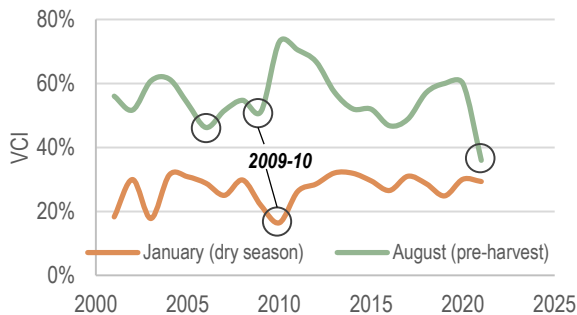
4. HYDROMETEOROLOGICAL HAZARDS - DROUGHT AND DRY SPELLS

FANGAK COUNTY

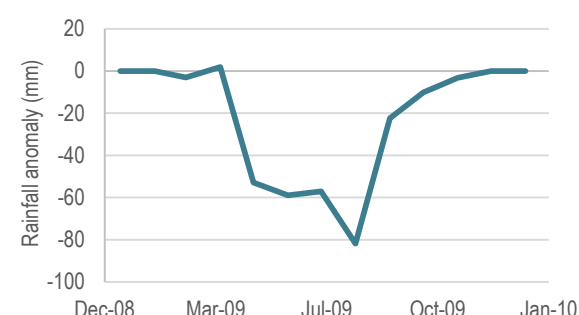
Map 4.1. Vegetation condition index (VCI), indicator of drought severity, in January 2010 - a detected drought periodⁱ



Graph 4.1. VCI (2000-2021) - drought index



Graph 4.2. Rainfall anomaly in 2009²⁷



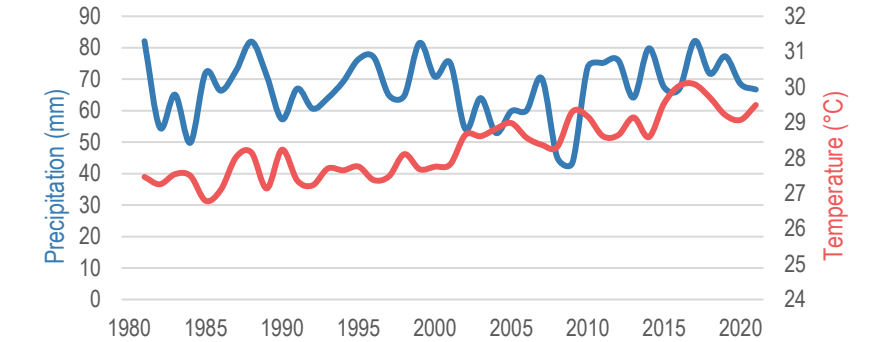
Fangak, as with other parts of South Sudan is also exposed to **droughts and dry spells driven by erratic rainfall and a changing climate**. Data on drought impacts is limited, but a 2015 IRNA report²¹ indicated maize and other crops had been affected by prolonged dry spells, whilst the combination of dry spells followed by excessive rainfall has been known to lead to crop damage.²²

Remote sensing and rainfall data indicate there was a **significant drought during the dry season in early 2010. This appears to be driven by a major rainfall deficit in the 2009 wet season**. The map shows the vegetation condition index (VCI)²³ in January 2010, which indicates vegetation health compared to the long-term mean. The map clearly shows large areas of severe and extreme drought, potentially affecting crop harvests, and wild food and surface water availability.

As Graph 4.3 indicates, **temperatures have been steadily increasing in Fangak county in recent decades**. Precipitation, on the other hand, appears to have been relatively erratic with no clear long-term trend. However, if these trends continue, **droughts could become more common in the future due to significant rainfall deficits and increasing temperatures**. Future climate projections (based on the Shared Socioeconomic Pathway 370 emissions scenarioⁱⁱ), suggest that precipitation in the wettest month across Fangak county will increase by 48/mm per month by 2060, whilst temperatures in the warmest month could increase by 2.3°C.²⁴ These increases in extreme conditions will likely lead to more intense and frequent climatic shocks, including droughts and floods, in future.

CLIMATE CHANGE

Graph 4.3. Long-term climatic trends (1981-2021), Fangak County^{25,26}



Projected climatic trends by 2060 based on ssp370 scenario, Fangak County²⁸

Projected change in precipitation in wettest month by 2060

+48mm/month

Projected change in max temperature in warmest month by 2060

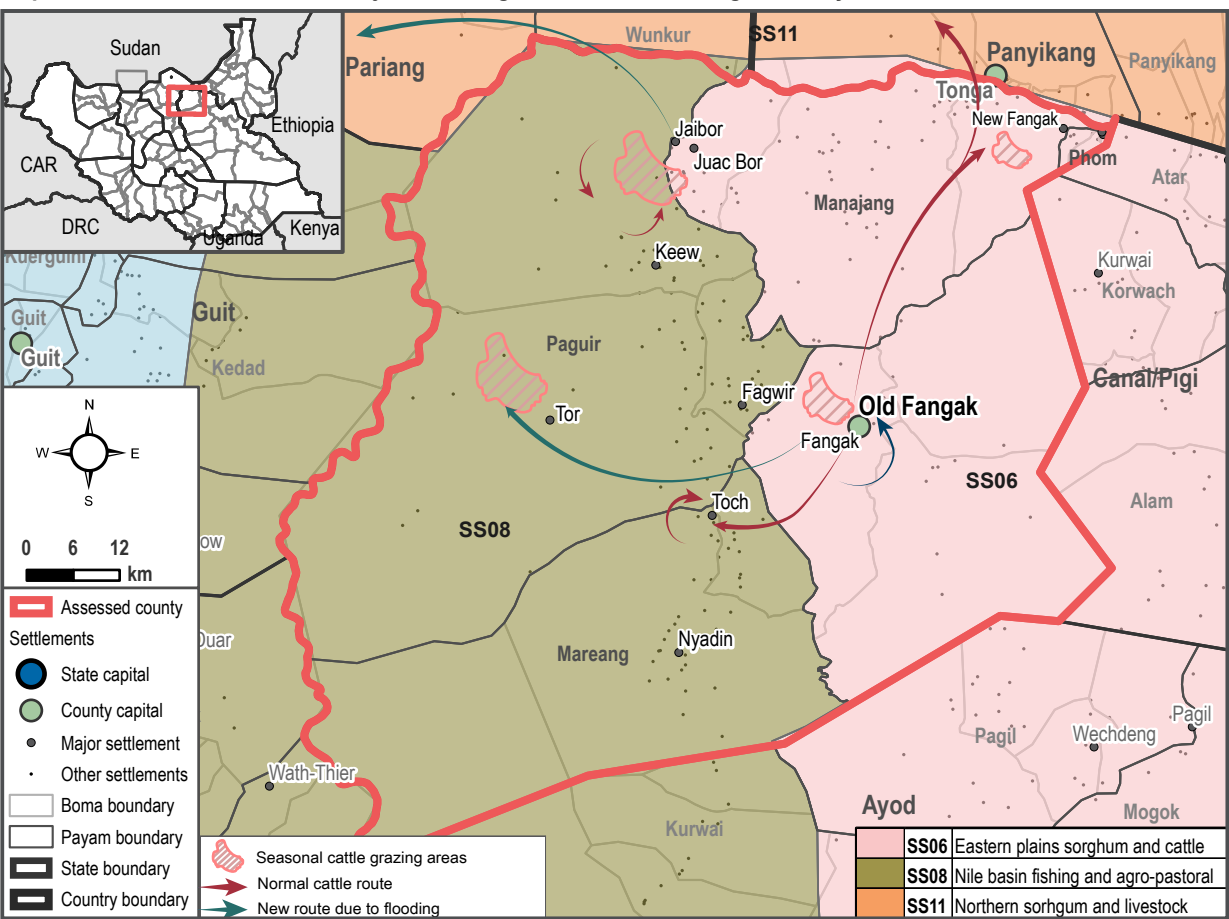
+2.3°C

i Vegetation condition index calculated in [Google Earth Engine](#) based on [MODIS EVI data](#)

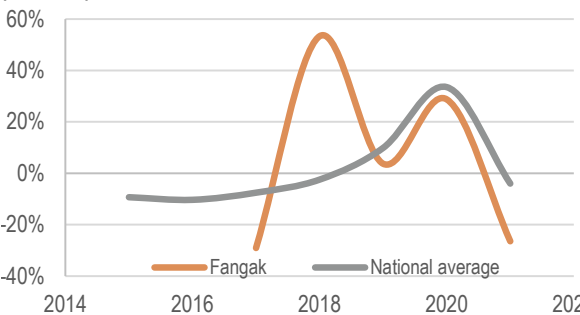
ii. Middle-estimate greenhouse gas emission scenario based on various socioeconomic assumptions.

5. LIVELIHOODS AND SOCIOECONOMIC CONDITIONS

Map 5.1. Livelihood zones³⁶ and major cattle migration routes³⁷ in Fangak County

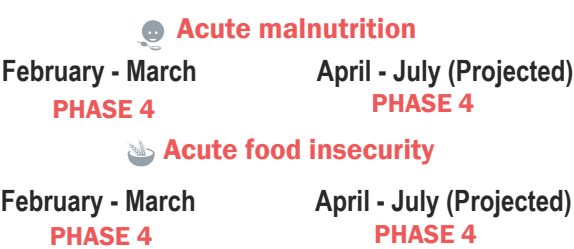


Graph 5.1. Year on year change in net cereal production (CFSAM)³⁸



i REACH AoK AoK data is collected at settlement-level and is based on reports by KIs. The methodology provides indicative data on the humanitarian situation including in hard-to-reach settlements. Only counties with 5% ccoverage of settlements are reported on.

IPC Scores - 2022⁴¹



WASH indicators

80-100% of assessed households reported practicing open defecation (WASH Severity Classification, May 2021)⁴²

KIs in 50% of settlements reported most people took 30 minutes to 1 hour to fetch drinking water (REACH AoK, April 2022)^{43.i}

FANGAK COUNTY

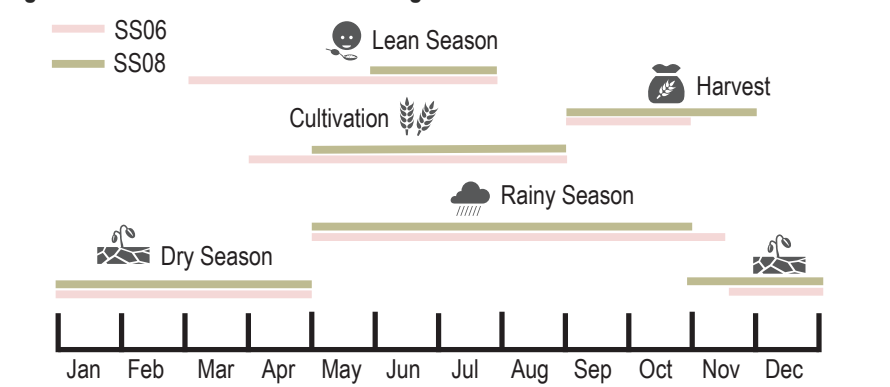
According to the Famine Early Warning Systems Network (FEWSNET)²⁹, there are two livelihood zones across the county (Map 5.1). Roughly defined by the Nile Basin, the western part of the county falls under the **Nile Basin Fishing and Agro-pastoral livelihood zone (SS08)**. Fishing and river-based production are more common here than in surrounding zones. Other natural resources include papyrus, wood, honey, and crude oil. Rain-fed farming is practised by most households. Livestock is commonly held and also brought in from other regions during the dry season.

East of the Nile Basin lies the **Eastern Plains Sorghum and Cattle livelihood zone (SS06)**. Livelihoods here are agro-pastoral, supplemented by fishing, hunting and collection of wild foods. Rain-fed cultivation is common, but exposed to flooding. Across the county, a 2018 report from FAOWFP estimated that **15% of households engage in agriculture, mainly for subsistence**³⁰.

The Integrated Phase Classification (IPC) March 2022³¹ analysis indicated the **county was in Phase 4 for acute food insecurity and acute malnutrition in Feb - March 2022**, with these scores projected to July 2022. There are also pockets of Phase 5 and the county remains one of the highest concern. Food insecurity is likely driven by significant underlying vulnerabilities, with atypical flooding and protracted conflict affecting cultivation, livestock, and access to markets and humanitarian assistance in recent years. Regarding WASH, open defecation is widely practised and the **WASH Severity Classification**³² flags the county as in **Phase 4 (Critical)** in May 2021.

Cattle migration routes have been altered by recent flooding, with increased movement from Old Fangak to areas of higher ground in Toch and Tor, and from Jaibor to Pariang.³³ Households have reportedly been **unable to cultivate since 2020 due to flooding, resulting in lower cereal production in 2021**³⁴ (Graph 5.1). Households have also had less ability to rely on traditional coping capacities due to large **reductions in cattle since the 2013-17 crisis**. Fishing has become more common, whilst the availability of wild foods, consumption of which is a common coping mechanism during the dry season, has been adversely affected by flooding³⁵.

Figure 5.1. Cultivation calendar for Fangak³⁹



6. POPULATION AND DISPLACEMENT

Map 6.1. Population density⁴⁵ across Fangak County (2020)

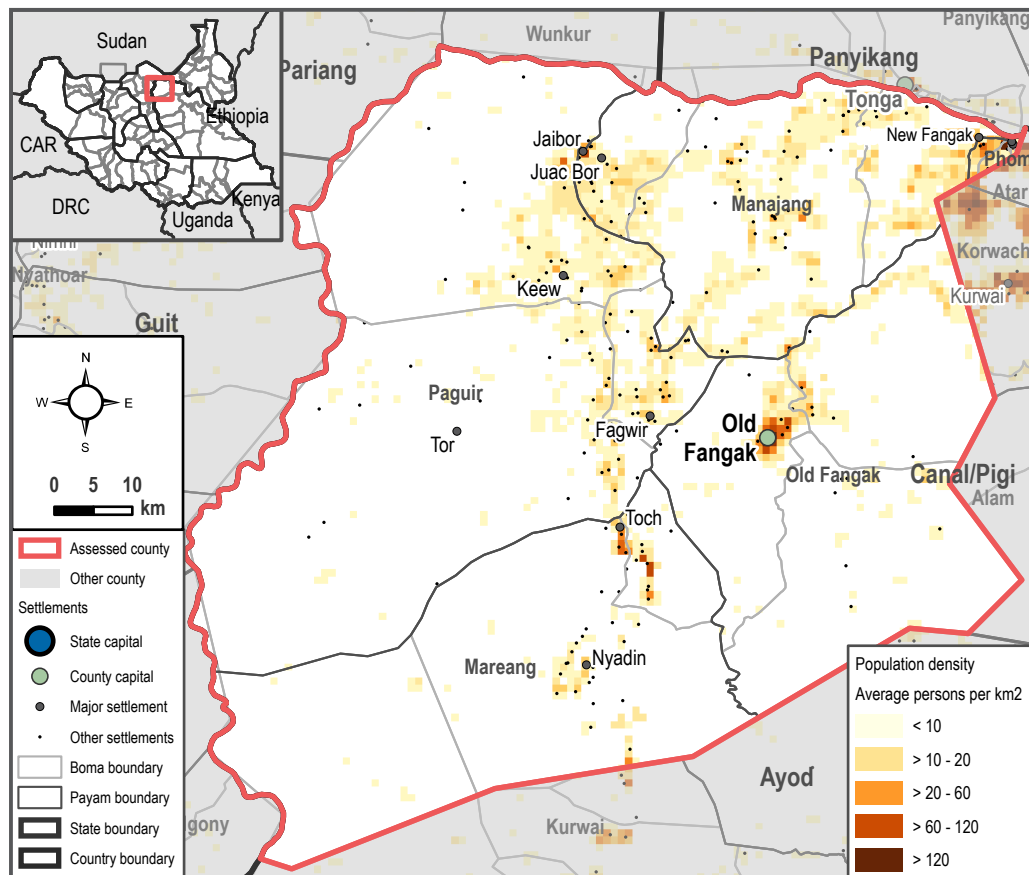


Table 6.1. Est. number of displaced persons by payam (2022)⁴⁴

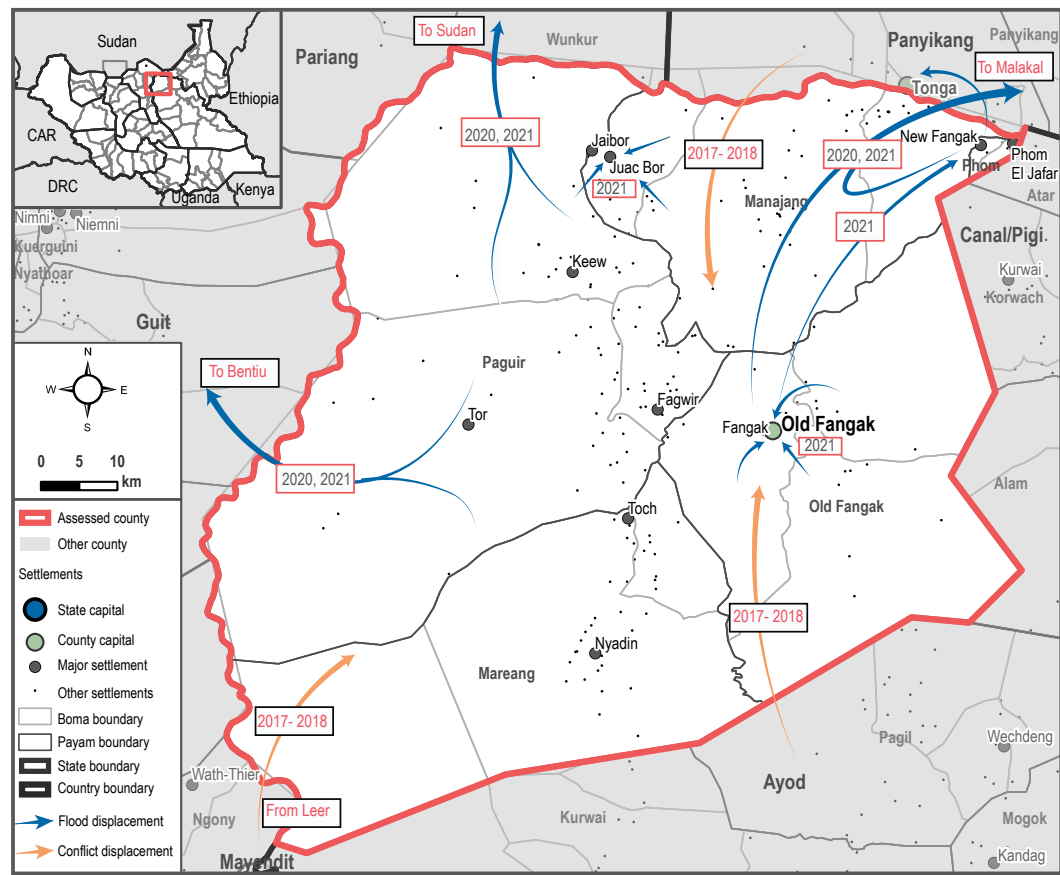
Payam	IDPs	Returnees	Relocated	Total
Manajang	3,000	800	0	3,800
Mareang	1,260	702	204	2,166
New Fangak	12,000	9,510	900	22,410
Old Fangak	1,254	1,398	360	3,012
Paguri	1,814	1,230	950	3,994
County total	19,328	13,640	2,414	35,382

The population is concentrated in the central and northeastern parts of the county, especially around the main towns of New Fangak and Old Fangak (Map 6.1). Between 2013-2018, Fangak county was perceived as a safe location during times of insecurity, and saw internally displaced persons (IDPs) arriving from other parts of Jonglei, as well as Upper Nile and Unity states.⁴⁶ Thousands of people from Ayod, Leer and Panyikang counties were reportedly displaced to Fangak due to insecurity between 2017 and 2018.⁴⁷ In addition, Fangak county was heavily affected by flooding in 2020-21, which triggered large-scale displacement from and within the county.

In late 2020 and early 2021, 25,000 people were displaced from Phom Payam to New Fangak Payam by flooding, which occurred atypically in the dry season.^{48,49} 5,800 people were displaced from locations within Paguri and Mareang Payams in July 2021 to other locations within the same payams.⁵⁰ Nearly 8,000 people were subsequently displaced from Old Fangak and New Fangak to Malakal and Mangalla between August and November 2021.⁵¹ Displacement was also reported from Fangak County to Bentiu and northwards to Sudan as a result of flooding in 2020 and 2021.⁵²

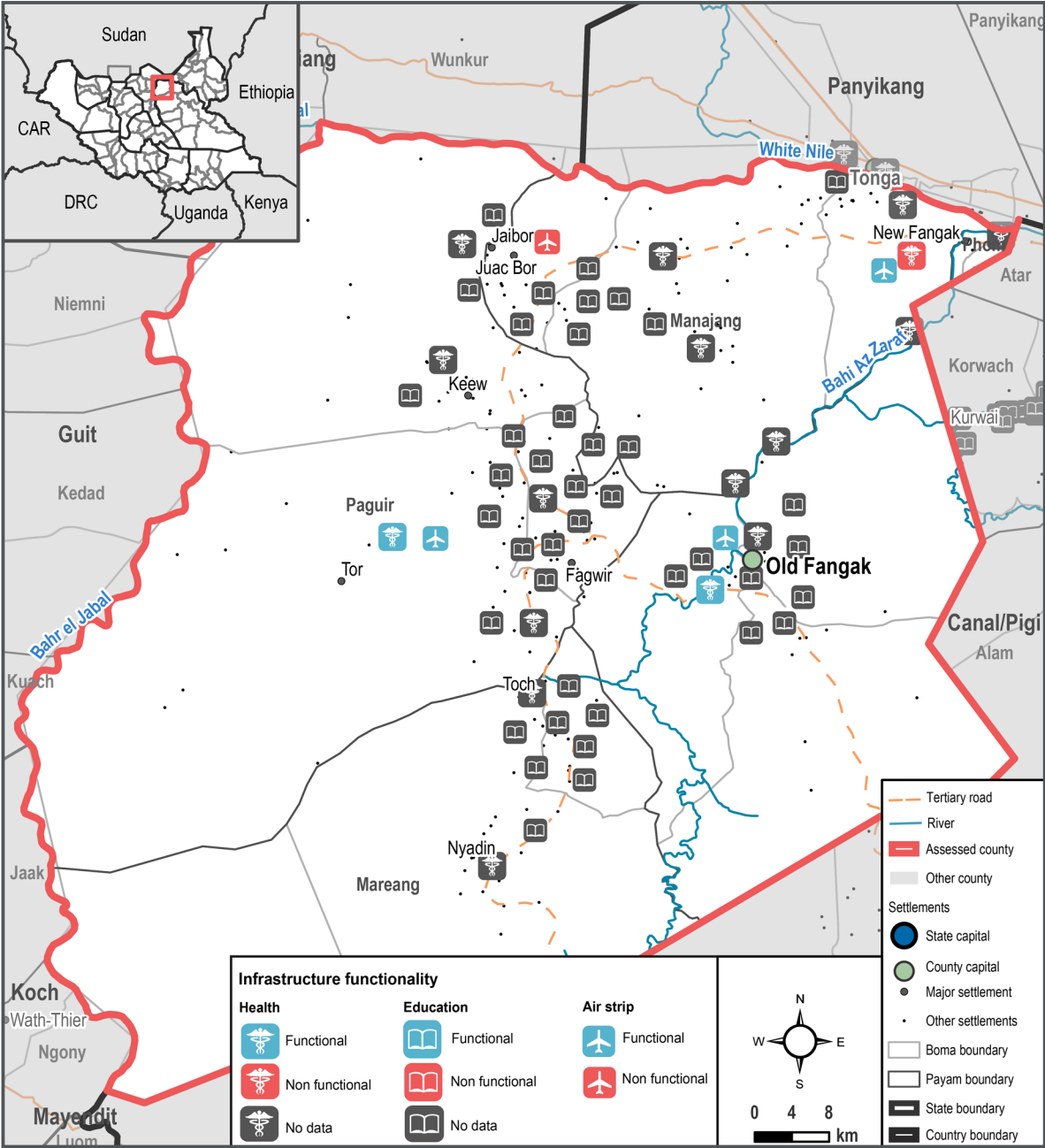
Significant barriers to movement were reported in the county in 2021, including standing water, insecurity, conflict lines, and impassable rivers, which limited the ability of people and livestock to move in and out of the county and the routes available to them.^{53,54}

Map 6.2. Significant population movements in Fangak county over the past five years (2017-21)



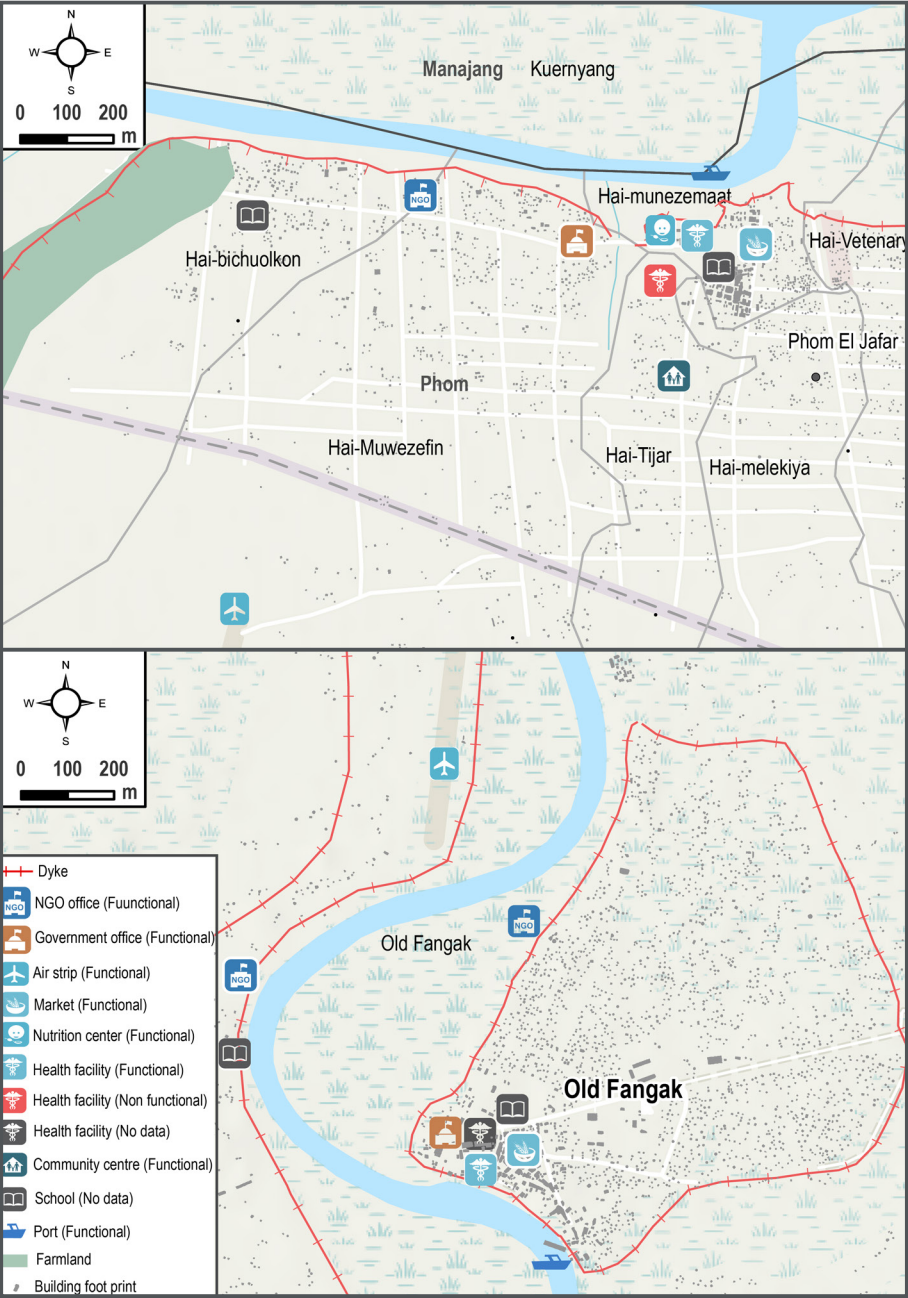
7. COMMUNITY INFRASTRUCTURE AND SERVICES

Map 7.1. Key infrastructure in Fangak County (2021) 55,56,57



FANGAK COUNTY

Map 7.2. Community infrastructure in New Fangak and Old Fangak (2021)



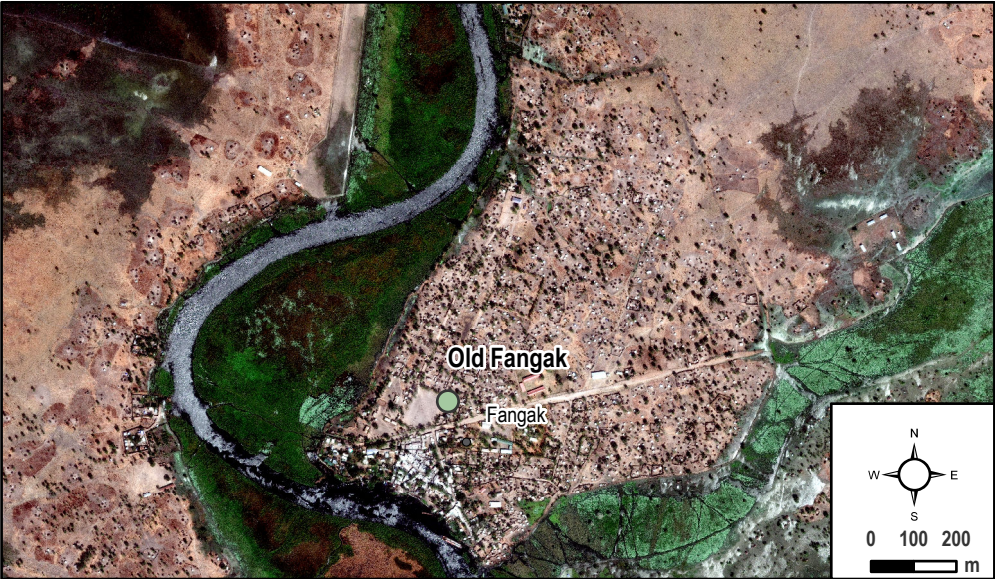
8. SETTLEMENT CHANGE

Figure 8.1. Satellite images showing change in built-up area in Old Fangak and New Fangak

Old Fangak, 2011 (24 October 2011, WorldView 2 image)



Old Fangak, 2020 (20 December 2020, GeoEye 1 image)



Satellite imagery: 1) WorldView 2 from 24 October 2011. Copyright: ©2011 DigitalGlobe. Source: US Department of State, Humanitarian Information Unit, NextView License
2) GeoEye 1 from 20 December 2020. Copyright: ©2020 DigitalGlobe. Source: US Department of State, Humanitarian Information Unit, NextView License

New Fangak, 2011 (18 July 2011, WorldView 2 image)



New Fangak, 2020 (4 October 2020, WorldView 2 image)



Satellite imagery: 1) WorldView 2 from 18 July 2011. Copyright: ©2011 DigitalGlobe. Source: US Department of State, Humanitarian Information Unit, NextView License
2) WorldView 2 from 4 October 2020. Copyright: ©2020 DigitalGlobe. Source: US Department of State, Humanitarian Information Unit, NextView License

SETTLEMENT STRUCTURE

Whilst the county headquarters were originally located in **Old Fangak, due to frequent flooding in recent years, New Fangak was made the new headquarters.**⁵⁸ Other key settlements in the county include Jaibor, Fagwir and Toch.

The tukul was the main reported shelter type in all settlements assessed in REACH's April 2022 Area of Knowledge (AoK) assessment.⁵⁹ However, a large amount of **shelter damage was reported as a result of the 2021 flooding**, and in April 2022, KIs in 21% of assessed settlements reported that more than half of all shelters had been destroyed (and not yet repaired) due to flooding.

- **Shelter indicators - REACH AoK*, April 2022⁶⁰**
- KIs in 100% of assessed settlements reported that the main shelter type used by local communities was a tukul**
 - KIs in 21% of assessed settlements reported that more than half of shelters were destroyed (and not yet repaired) in the past month due to flooding**

TRANSPORT

There are **no primary roads in Fangak county. A secondary road connects New Fangak and Atar, running north from Motot town through Fangak County**, before curving east to follow the southern bank of the White Nile River. **Another secondary road extends from this road, southeast through Old Fangak town and on to Yuai.**⁶⁵

Due to **limited road transport and access issues during the rainy season, transportation is mainly undertaken via waterways and air.** Barges and riverine traffic are able to travel along the White Nile in western Fangak year-round (Map 10.1). The infrastructure map (p.8) indicates the main airfields, which are located in Old Fangak and New Fangak, as well as in Tor, and one under construction in Jaibor.

*REACH AoK AoK data collected at settlement-level and based on reports by KIs. The methodology provides indicative data on humanitarian situation including in hard-to-reach settlements. Only counties with 5% coverage of settlements are reported on.

INFRASTRUCTURE

Fifteen health centres⁶¹ and 45 schools (44 primary and 1 secondary) are spread throughout Fangak county.⁶² However, **damaged infrastructure and physical access barriers appear to prevent many people from accessing these services.**

During a June 2021 REACH assessment, **only two health centres (one in Old and one in New Fangak) were found to be functional**, with clinics facing shortages of medical supplies and specialised equipment. More recent AoK findings suggest **barriers persisted; in April 2022, walkable access to a functioning health facility was reported by KIs in just 29% of assessed settlements, compared to 100% in April 2021.** Flooding emerged as the most reported reason for the damage to health facilities.

Similarly, KIs in 66% of settlements assessed in the March 2022 AoK reported **no education services had been available in the 3 months prior to data collection**, while this proportion had been 0% at the same time the previous year, indicating considerable damage and access constraints as a result of floods across the county in 2021.

Of the key settlements in Fangak, **Tor is also located the furthest from any education facility, at 23km.** The only secondary school in the county is located in Old Fangak. In **March 2022, 66% of KIs interviewed in the REACH AoK reported that no education services had been available in the past 3 months.**⁶³ This is up from 0% at the same time the year before, indicating **significant damage and access constraints must have occurred due to the 2021 flooding** across the county.

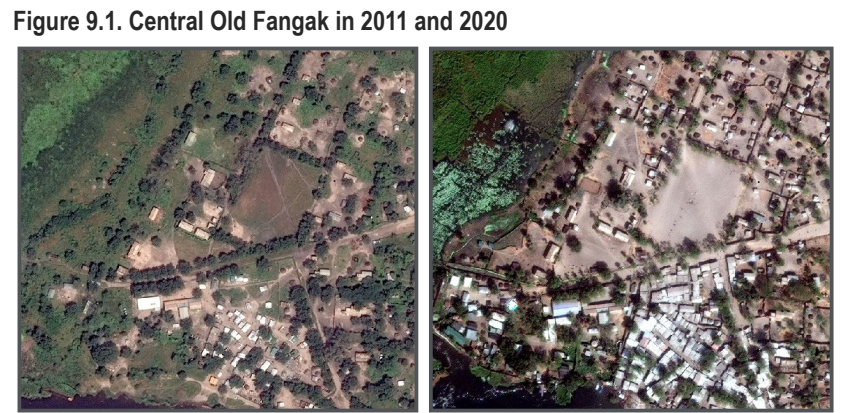
The lack of mobile phone network towers in the area has limited communication capacity. It is **one of the most communication-starved counties in South Sudan**, with 100% of assessed settlements reportedly having no network access.⁶⁴

Table 9.1. Key settlements located the furthest from a functioning health centre in Fangak county

Settlement	Distance (km)
Tor	21.0
Fagwir	7.5
Juac Bor	2.5
Keew	1.5

URBAN CHANGE

From the satellite imagery on page 9, it can be observed that urban areas in Fangak county have gone through major changes in the past ten years. In addition to **urban expansion, population density has increased significantly in Old Fangak.** A significant **change in building materials** can also be seen, with more aluminium roofs used by 2020. **A large amount of encroachment into the surrounding bush is noticeable**, with largescale clearance on both sides of the river.

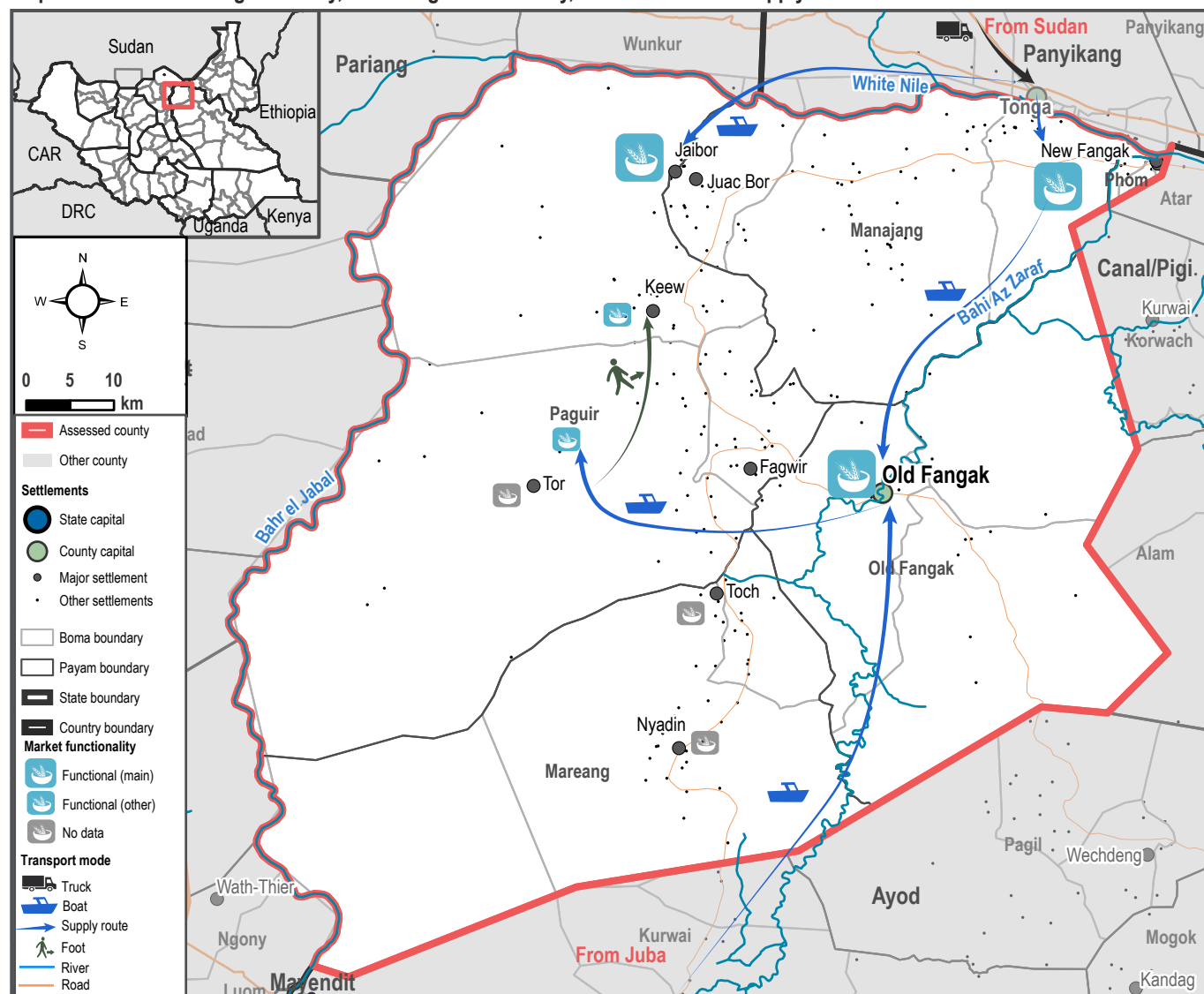


In New Fangak meanwhile, the **town size had decreased along with population density by 2020.** Large scale damage and destruction of homes (most likely due to the conflict) can be seen, as well as a some more modern development in the central area. As mentioned, many people **displaced back to New Fangak following the 2021 flooding**, suggested there may be more informal shelters by now. Additional damage may also have occurred due to flooding.



10. MARKETS, TRANSPORT AND ACCESSIBILITY

Map 10.1 Markets in Fangak County, indicating functionality, as well as market supply routes



Market name	No. of traders	Primary supply route
New Fangak	290	Khartoum > Liri, Sudan > Tonga (road) > New Fangak (boat)
Old Fangak	240	Juba > Old Fangak (boat)
Jaibor	150	Juba > Jaibor (boat)
Toch	10	Juba > Old Fangak > Toch (boat)

Sorghum price (May 2022)

41% above South Sudan median

MSSMEB price (May 2022)

38% above South Sudan median

< Table 10.1. Key market facts, Fangak (Jan 2020)⁷¹

FANGAK COUNTY

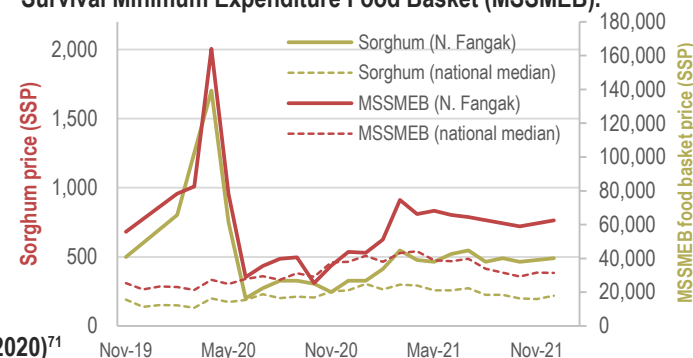
The primary markets in the county are located in New Fangak and Old Fangak. In January 2020, a REACH market assessment⁶⁶ found that they had 290 and 240 traders, respectively. Jaibor is another large market in the county, whilst an additional 11 satellite markets were identified in the assessment, all of which are serviced from Old Fangak and New Fangak.

Markets in Fangak county are mostly supplied by boat from Juba, and Tonga (in neighbouring Panyikang county), where goods are transported from Sudan by road. There are no primary roads within Fangak county itself. Typically, staple cereals (sorghum and maize) are supplied by local producers. Supply routes from Renk and Malakal are cut off due to insecurity.⁶⁷

In May 2022, REACH Joint Market Monitoring Initiative (JMIMI) data⁶⁸ indicated that Old Fangak market was running with limited functionality, meaning that only very few items were available and prices were high. The REACH market assessment indicated market prices in Fangak are generally double or more than those in Juba. Prices present a major barrier to market access for most of the population, who largely lack access to cash-generating livelihood activities. The graph below shows prices of sorghum and the Multi-Sector Survival Minimum Expenditure (MSSMEB) Food Basket in the county, plus national median prices.

High prices are driven by heavy taxation along supply routes, access issues and high transport costs.⁶⁹ Prices can reach even higher in some satellite markets, some of which are only accessible by foot. Flooding in recent years has resulted in further access issues for traders, whilst they also face insecurity and delays at check points on the Nile and at informal border crossings with Sudan. Significant price spikes have also occurred in response to shocks, such as in early 2020, driven by insecurity in Sudan, as well as low harvesting.

Graph 10.1. Market price trends for sorghum and Multi-Sector Survival Minimum Expenditure Food Basket (MSSMEB).⁷⁰



ENDNOTES

- 1 IOM. County Population data. 2022.
- 2 REACH. [Fangak Shocks Verification Mission](#). June 2021.
- 3 Conflict Sensitivity Resource Facility (CSRF). [Fangak County Profile](#).
- 4 ibid.
- 5 Google Earth Engine. [NASA SRTM Digital Elevation Model](#). 2000.
- 6 Famine Early Warning Systems Network (FEWSNET). [Livelihood Zone Map and Descriptions for the Republic of South Sudan](#). Issued August 2018.
- 7 UNESCO. [Sudd wetland description](#). Famine Early Warning Systems Network (FEWSNET). [Livelihood Zone Map and Descriptions for the Republic of South Sudan](#). Issued August 2018.
- 8 Famine Early Warning Systems Network (FEWSNET). [Livelihood Zone Map and Descriptions for the Republic of South Sudan](#). Issued August 2018.
- 9 Google Earth Engine. [CHIRPS Daily Rainfall Data](#). 1981-2022.
- 10 ibid.
- 11 Google Earth Engine. [ERA5-Land Monthly Average Dataset](#). February 2022.
- 12 FAO. [Land Cover Atlas of the Republic of South Sudan](#). 2011.
- 13 Google Earth Engine. [ESA WorldCover v100. 2020](#).
- 14 Digitize Africa. Building footprints. 2017.
- 15 DAHITI. [Altimetry data. 2002-2022](#).
- 16 REACH. South Sudan: [Flooding trends in counties of particular concern of food insecurity](#). December 2021.
- 17 REACH. [Fangak Shocks Verification Mission](#). June 2021.
- 18 ibid.
- 19 REACH. [South Sudan Shocks Monitoring Index \(SMI\)](#). 2017-22.
- 20 DAHITI. [Altimetry data. 2002-2022](#).
- 21 Coordinated Assessments. [IRNA Report: New Fangak](#) (Wicmoun and Buom). August 2015.
- 22 UN-SPIDER. [Recommended Practice: Drought monitoring using the Vegetation Condition Index \(VCI\)](#).
- 23 Conflict Sensitivity Resource Facility (CSRF). [Fangak County Profile](#).
- 24 WorldClim. [Bioclimatic variables](#).
- 25 Google Earth Engine. [ERA5-Land Monthly Average Dataset](#). February 2022.
- 26 Google Earth Engine. [CHIRPS Daily Rainfall Data](#). 1981-2022.
- 27 ibid.
- 28 WorldClim. [Bioclimatic variables](#).
- 29 Famine Early Warning Systems Network (FEWSNET). [Livelihood Zone Map and Descriptions for the Republic of South Sudan](#). Issued August 2018.
- 30 Conflict Sensitivity Resource Facility (CSRF). [Fangak County Profile](#).
- 31 Integrated Food Security Phase Classification (IPC). [South Sudan Acute Food Insecurity and Acute Malnutrition Analysis](#). Feb - July 2022.
- 32 REACH. South Sudan [WASH Severity Classification](#). April 2021.
- 33 REACH. [Fangak Shocks Verification Mission](#). June 2021.
- 34 ibid.
- 35 ibid.
- 36 Famine Early Warning Systems Network (FEWSNET). [Livelihood Zone Map and Descriptions for the Republic of South Sudan](#). Issued August 2018.
- 37 REACH. [Fangak Shocks Verification Mission](#). June 2021 - cattle migration map.
- 38 FAO/WFP. 2021 Crop and Food Security Assessment Mission ([CFSAM](#)) to the Republic of South Sudan. June 2022.
- 39 Famine Early Warning Systems Network (FEWSNET). [Livelihood Zone Map and Descriptions for the Republic of South Sudan](#). Issued August 2018.
- 40 ibid.
- 41 Integrated Food Security Phase Classification (IPC). [South Sudan Acute Food Insecurity and Acute Malnutrition Analysis](#). Feb - July 2022.
- 42 REACH. South Sudan [WASH Severity Classification](#). April 2021.
- 43 REACH [Area of Knowledge \(AoK\)](#).
- 44 IOM - DTM [Baseline Survey](#) 2022.
- 45 Google Earth Engine. [WorldPop](#) Global Project Population Data. 2021.
- 46 The Guardian. [A safe haven on the Nile: life in South Sudan's Old Fangak](#). 25 May 2018
- 47 REACH. [Population Movement Baseline Report](#). 2020.
- 48 IOM-DTM Event Tracking Dataset, January-December 2021.
- 49 REACH. [Fangak Shocks Verification Report](#). June 2021.
- 50 IOM-DTM Event Tracking Dataset, January-December 2021.
- 51 ibid.
- 52 REACH. [Fangak Shocks Verification Report](#). June 2021.
- 53 ibid.
- 54 REACH. Fangak County Focus Group Discussion, Bor Town. June 2021.
- 55 REACH. [Fangak Shocks Verification Mission](#). June 2021.
- 56 IOM. Education facilities. 2021.
- 57 WHO. Health facilities. 2021.
- 58 REACH. [Fangak Shocks Verification Mission](#). June 2021.
- 59 REACH [Area of Knowledge \(AoK\)](#).
- 60 ibid.
- 61 WHO. Health facilities. 2021.
- 62 IOM. Education facilities. 2021.
- 63 REACH [Area of Knowledge \(AoK\)](#).
- 64 Conflict Sensitivity Resource Facility (CSRF). [Fangak County Profile](#).
- 65 Conflict Sensitivity Resource Facility (CSRF). [Fangak County Profile](#).
- 66 REACH. [Fangak Rapid Market Assessment](#). 2020.
- 67 ibid.
- 68 REACH. [Joint Market Monitoring Initiative \(JMMI\)](#).
- 69 REACH. [Fangak Rapid Market Assessment](#). 2020.
- 70 REACH. [Joint Market Monitoring Initiative \(JMMI\)](#).
- 71 ibid.