

METHODOLOGY OVERVIEW

REACH enumerators conducted structured household interviews with 406 refugee and returnee households entering Chad at relevant border crossing points and in reception centers between 19-22 June 2023. An in-depth presentation of the indicative findings about the population remaining in Sudan can be found in the [West Darfur Situation Overview](#).

REACH also sourced satellite imagery* of locations reportedly hosting displaced households, before and after 15th April 2023 to give a visual overview of the increase and distribution of shelters in locations reportedly hosting displaced households. REACH also used secondary sources to determine the flood risk for these locations. This remote analysis covered six locations for which REACH was able to obtain GPS coordinates: Adré, Borota, Goungour, Koufroun, Labane Dafak and Midjiguita. For each time period (pre-conflict and post-conflict), the most recent images of sufficiently high quality were selected for analysis. Pre-conflict images were taken between 22 March 2022 and 23 March 2023. Post-conflict images were taken between 14 May and 2 July 2023.

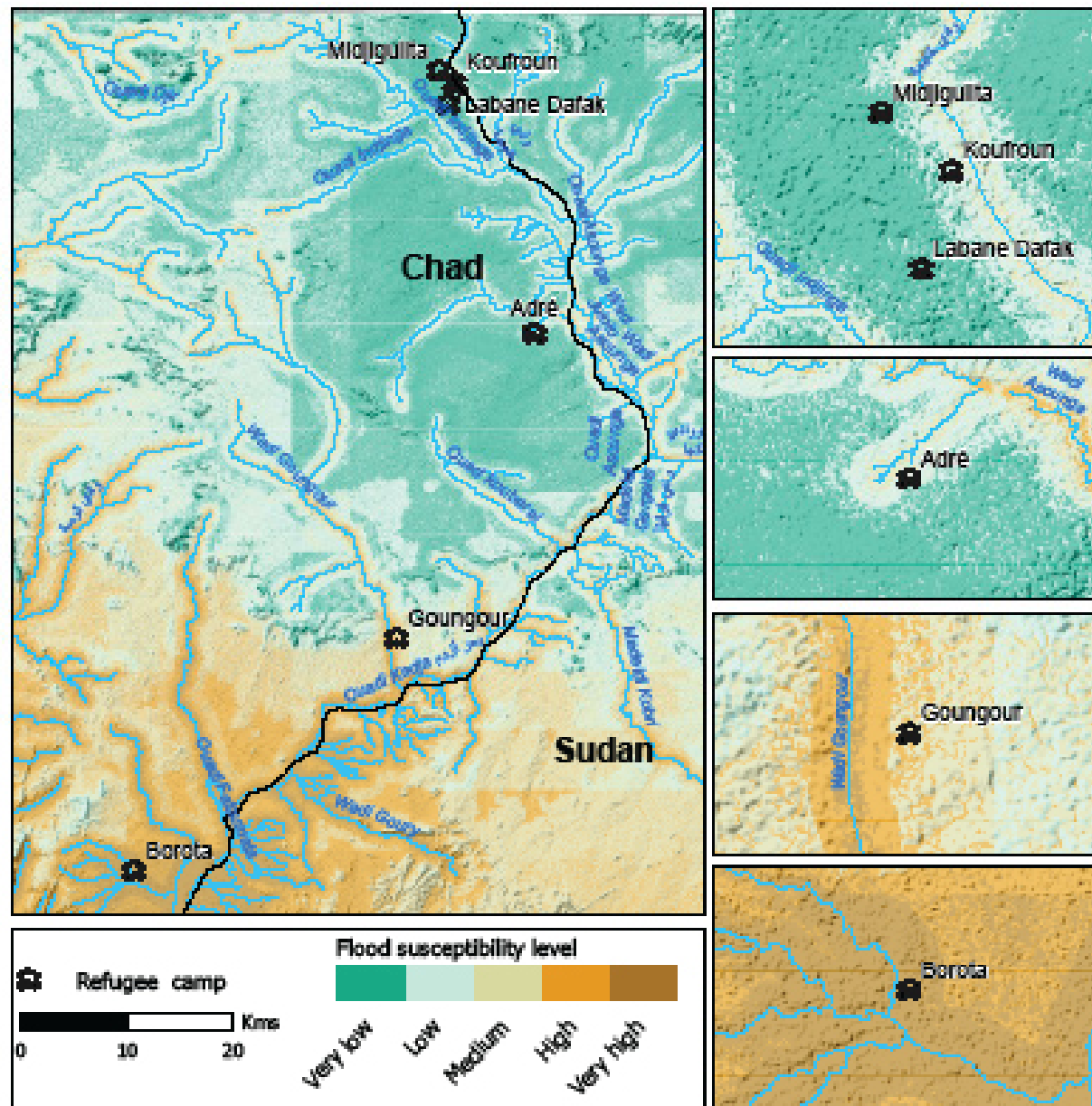
The methodology used to calculate flood susceptibility used is based on multicriteria analysis including the following eight criteria: the Proximity of the river and the drainage density obtained from Sudan hydrographic network layer, the slope of the grounds surface, the elevation and topographic wetness index obtained from SRTM (Shuttle Radar Topography Mission) imagery, the soil water holding capacity obtained from Soil Geographic Databases, the rainfall data from 1993 to 2023 obtained from CHIRPS (Climate Hazards Group Infrared Precipitation with Station data) and the land use land cover data of 2022 obtained from ESRI land use and land cover.

Findings from household interviews are indicative and cannot be generalised with a known level of precision. Given the volatile nature of the erupting conflict, and subsequent displacement, the situation in displacement sites in Chad may have changed since the images in this factsheet were taken. Where possible, findings should be triangulated with new information. For more information on the methodology, please refer to page 9.



FLOOD SUSCEPTIBILITY OF SPONTANEOUS SETTLEMENTS

Map 2: Estimated flood susceptibility of assessed displacement sites:



*Satellite imagery: WorldView 1 from 2022 and 2023 Copyright: ©2023 DigitalGlobe. Source: US Department of State, Humanitarian Information Unit, NextView License

 **IMAGERY OF SPONTANEOUS SETTLEMENTS**
ADRE

Figure 1: Adré, 18 October 2022



Figure 2: Adré, 28 June 2023



Displacement Journeys and Protection

REACH teams interviewed 139 households in Adré on 22 June 2022.

98%

of respondents reported coming from Ag Geneina locality.

69%

of households are reportedly expecting more members of their household to join them in Adré.

97%

of respondents reported arriving in Adré on foot.

96%

of respondents reported displacing due to active conflict in their settlement of origin.

64%

of respondents reported that they have been separated from a household member since displacement.

47%

of respondents reported children in their household had been separated from both parents.



133,703

estimated [total arrivals](#) from Sudan, as of 14th July.

Figure 1 shows a satellite image of Adré from October 2022, while Figure 2 shows an image of the same location from June 2023. Supported by [reports](#) of 133,703 individuals arriving in Adré from Sudan, a comparison of these two images suggests an increase in the number of shelters between October 2022 and June 2023. When comparing the current images of all settlements assessed in this factsheet (Figures 2, 4, 6, 8, 10 and 12), satellite images suggest that Adré is the location hosting the largest number of refugees and returnees, which aligns with site-level estimates from [UNCHR arrivals updates](#). Based on the flood susceptibility presented in Map 2, Adré and the surrounding area likely face a low-medium risk of flooding.

*As of 14 July, [IOM](#) estimations of returnee population do not include figures from Adré.



IMAGERY OF SPONTANEOUS SETTLEMENTS
BOROTA

Figure 3: Borota, 26 Nov 2022



Displacement Journeys and Protection

REACH teams interviewed 140 households in Borota on 19 and 20 June 2022.

91%

of respondents reported coming from Beida locality.

56%

of households are reportedly expecting more members of their household to join them in Borota.

74%

of respondents reported arriving in Borota on foot.

96%

of respondents reported displacing due to active conflict in their settlement of origin.

48%

of respondents reported that they have been separated from a household member since displacement.

14%

of respondents reported children in their household had been separated from both parents.

Figure 4: Borota, 3 June 2023



As of 14 July:



37,755

estimated total arrivals from Sudan.



2700 of total arrivals estimated to be returnees.

Figure 1 shows a satellite image of Borota from November 2022, while Figure 2 shows an image of the same location from June 2023. Supported by [reports](#) of 37,755 individuals arriving in Borota from Sudan, a comparison of these two images suggests the establishment of shelters near the river between November 2022 and June 2023, where no shelter had been visible in November 2022. The proximity of these shelters to two waterways, and the flood susceptibility presented in Map 2, suggest that these new shelters in Borota, as well as the shelters in the surrounding area, likely face a very high risk of flooding.

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 **IMAGERY OF SPONTANEOUS SETTLEMENTS**
GOUNGOUR

Figure 5: Goungour, 23 March 2023

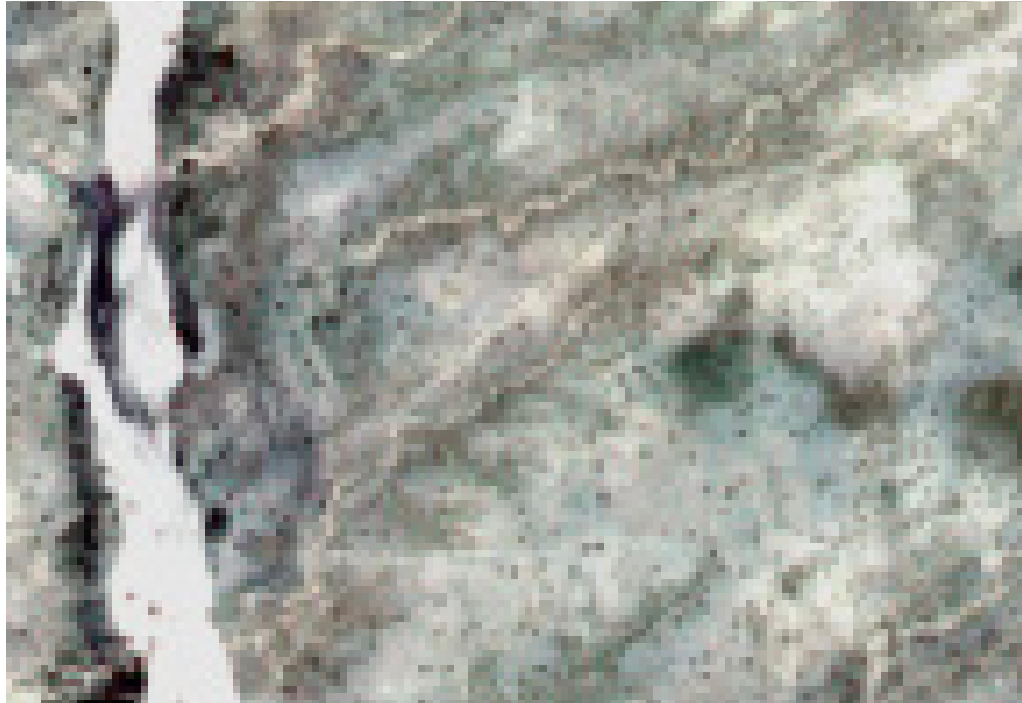


Figure 6: Goungour, 2 July 2023



Displacement Journeys and Protection

REACH teams interviewed 127 households in Goungour on 21 June 2022.

- 93%** of respondents reported coming from Beida locality.
- 76%** of households are reportedly expecting more members of their household to join them in Goungour.
- 89%** of respondents reported arriving in Goungour on foot.
- 98%** of respondents reported displacing due to active conflict in their settlement of origin.
- 21%** of respondents reported that they have been separated from a household member since displacement.
- 19%** of respondents reported children in their household had been separated from both parents.

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 **16,958** estimated [total arrivals](#) from Sudan, as of 14 July.

Figure 1 shows a satellite image of Goungour from March 2023, while Figure 2 shows an image of the same location from July 2023. Despite these images being less clear than others in this factsheet, a comparison of these two images, alongside [reports](#) of 16,958 individuals arriving in Goungour from Sudan, suggests an increase in the number of shelters extending north-east from the river between March 2023 and July 2023. When taking the proximity of these shelters to a waterway into account, and considering the flood susceptibility presented in Map 2, suggest that Goungour and the surrounding area likely face a medium-high risk of flooding.

*As of 14 July, [IOM](#) estimations of returnee population do not include Goungour.

 **IMAGERY OF SPONTANEOUS SETTLEMENTS**
KOUFROUN

Figure 7: Koufroun, 25 March 2022

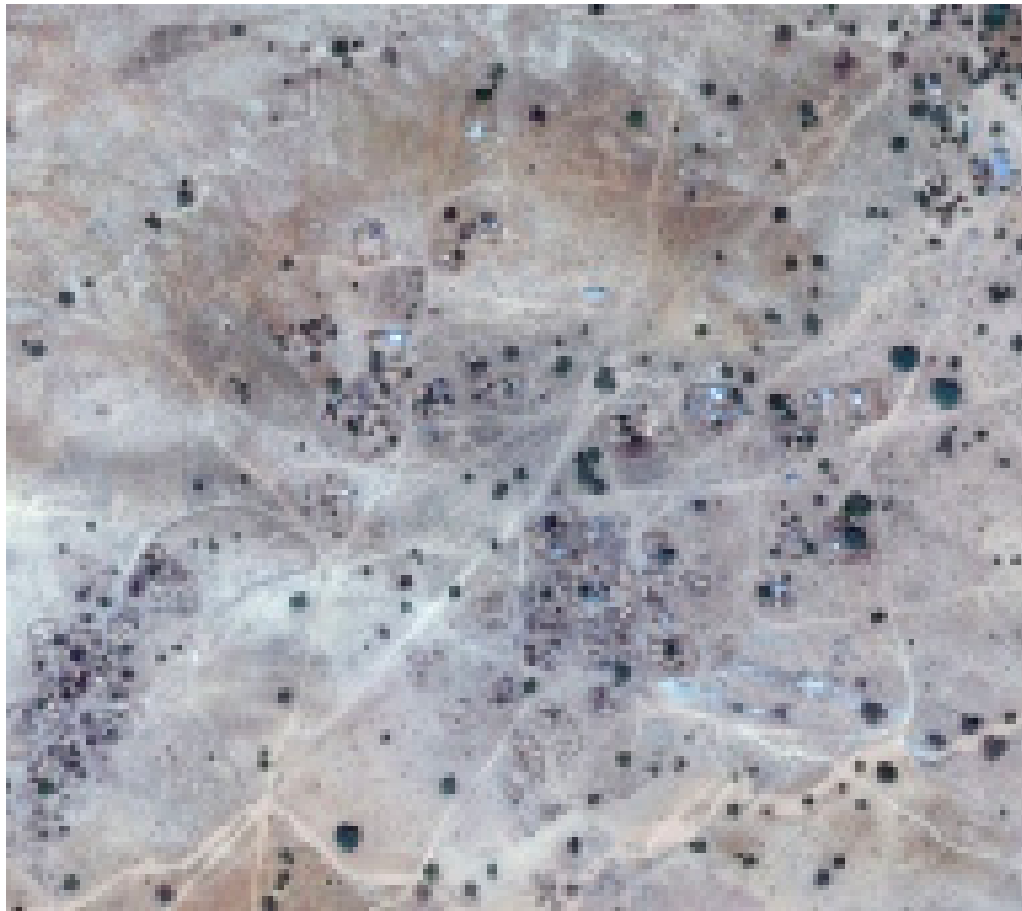
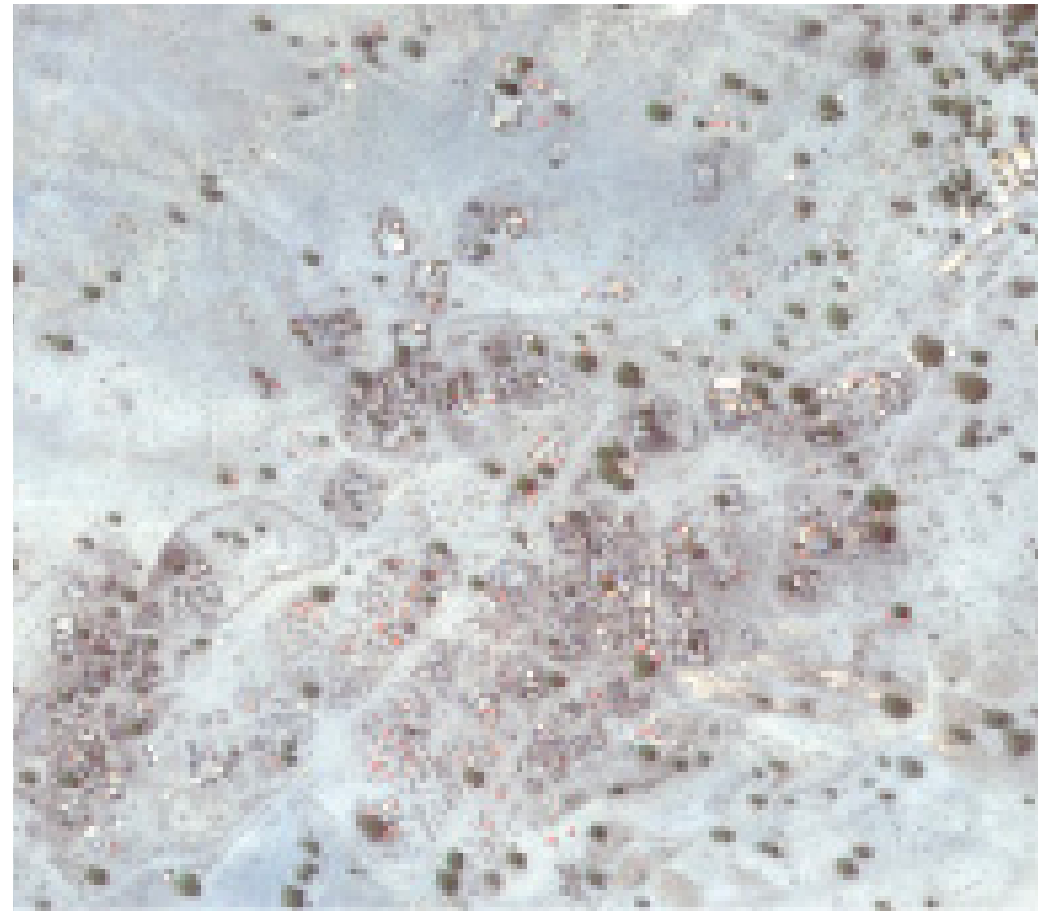


Figure 1 shows a satellite image of Koufroun from March 2022, while Figure 2 shows an image of the same location from May 2023. Supported by [reports](#) of 8815 individuals arriving in Koufroun from Sudan, a comparison of these two images may suggest a slight increase in the number of shelters in the settlement between March 2022 and May 2023.* When comparing the current images of all settlements assessed in this factsheet (Figures 2, 4, 6, 8, 10 and 12), new shelters in Koufroun are distributed among existing shelters, rather than concentrated in one area as they are in Adré, Borota and Goungour. This may reflect the smaller number of [reported arrivals into Koufroun](#) than other assessed settlements. According to the flood susceptibility presented in Map 2, Koufroun and the surrounding area likely face a low-medium risk of flooding.

*Considering the length of time between these images, it is possible that some of the new shelters in May 2023 had appeared before the beginning of the conflict in Sudan.

Figure 8: Koufroun, 14 May 2023



As of 14 July:

 **8815** estimated total arrivals from Sudan.

 **227** of total arrivals estimated to be returnees.

REACH did not collect data in Koufroun during the cross-border assessment. In June 2023, REACH field teams reported that access to Koufroun was difficult due to its geographical isolation and nearby water channels. Despite its relatively low susceptibility to flooding (see Map 1), REACH teams noted that rain may prevent access to Koufroun for several hours as water channels become too deep to traverse. Further triangulation of this observational data is recommended.



 **IMAGERY OF SPONTANEOUS SETTLEMENTS**
LABANE DAFAK

Figure 9: Labane Dafak, 22 March 2022

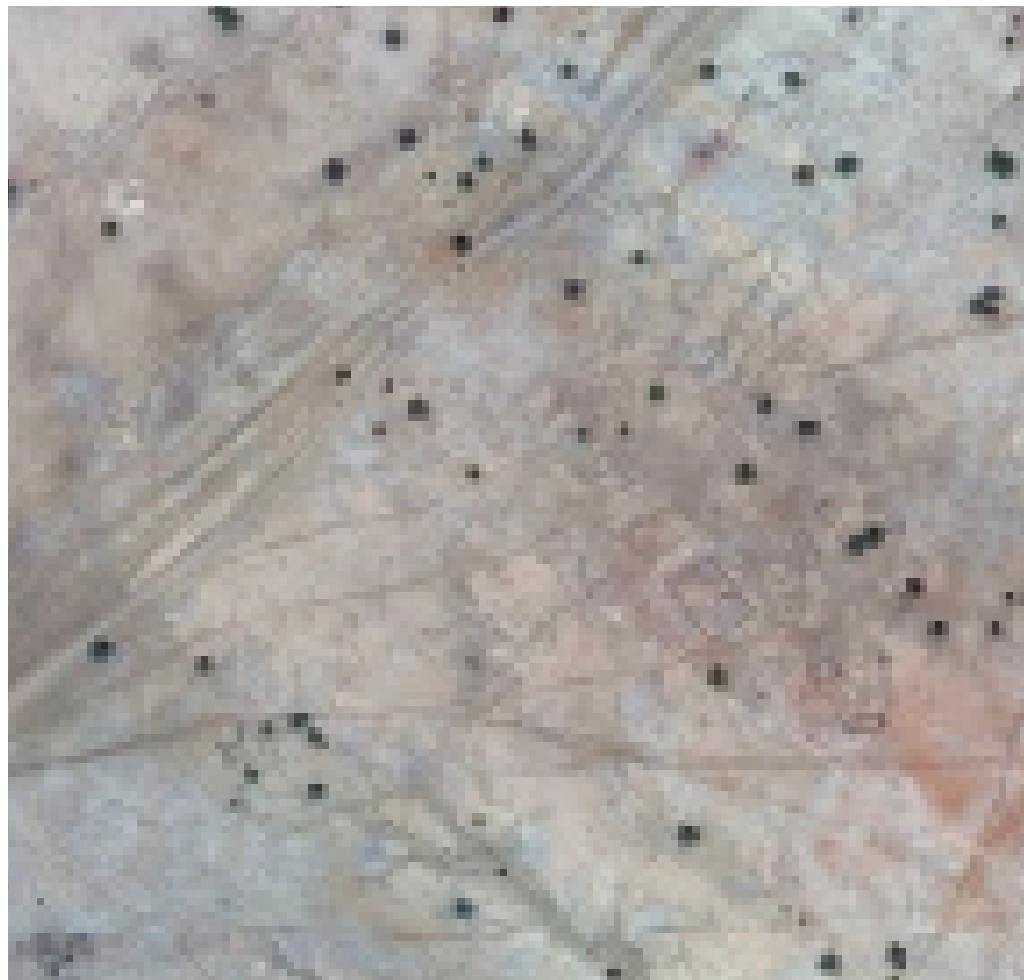
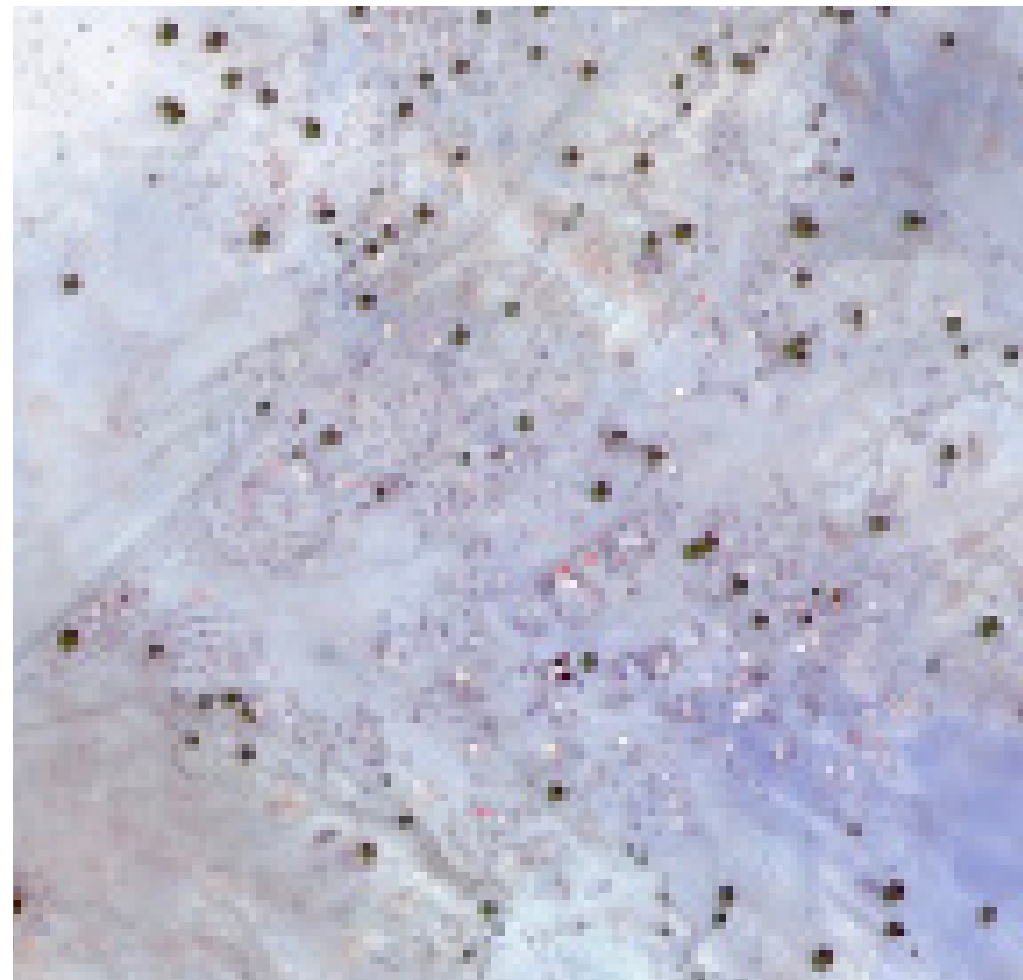


Figure 1 shows a satellite image of Labane Dafak from March 2022, while Figure 2 shows an image of the same location from June 2023. Supported by [reports](#) of 2976 individuals arriving in Labane Dafak from Sudan, a comparison of these images suggests a slight increase in the number of shelters in the settlement between March 2022 and June 2023.* When comparing the current images of all settlements assessed in this factsheet (Figures 2, 4, 6, 8, 10 and 12), there are fewer newly visible shelters in Labane Dafak than in other assessed settlement, which reflect [site-level arrivals estimates from UNHCR](#). According to the flood susceptibility presented in Map 2, Labane Dafak and the surrounding area likely face a low-very low risk of flooding.

*Considering the length of time between these images, it is possible that some of the new shelters in May 2023 had appeared before the beginning of the conflict in Sudan.

Figure 10: Labane Dafak, 3 June 2023



As of 14 July:

 **2976** *estimated total arrivals from Sudan.*

 **19** *of total arrivals estimated to be returnees.*

REACH did not collect data in Labane Dafak during the cross-border assessment. According to [UNHCR updates](#), a large proportion of residents at this settlement had been relocated to displacement sites further from the border.



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 **IMAGERY OF SPONTANEOUS SETTLEMENTS**
MIDJIGUILTA

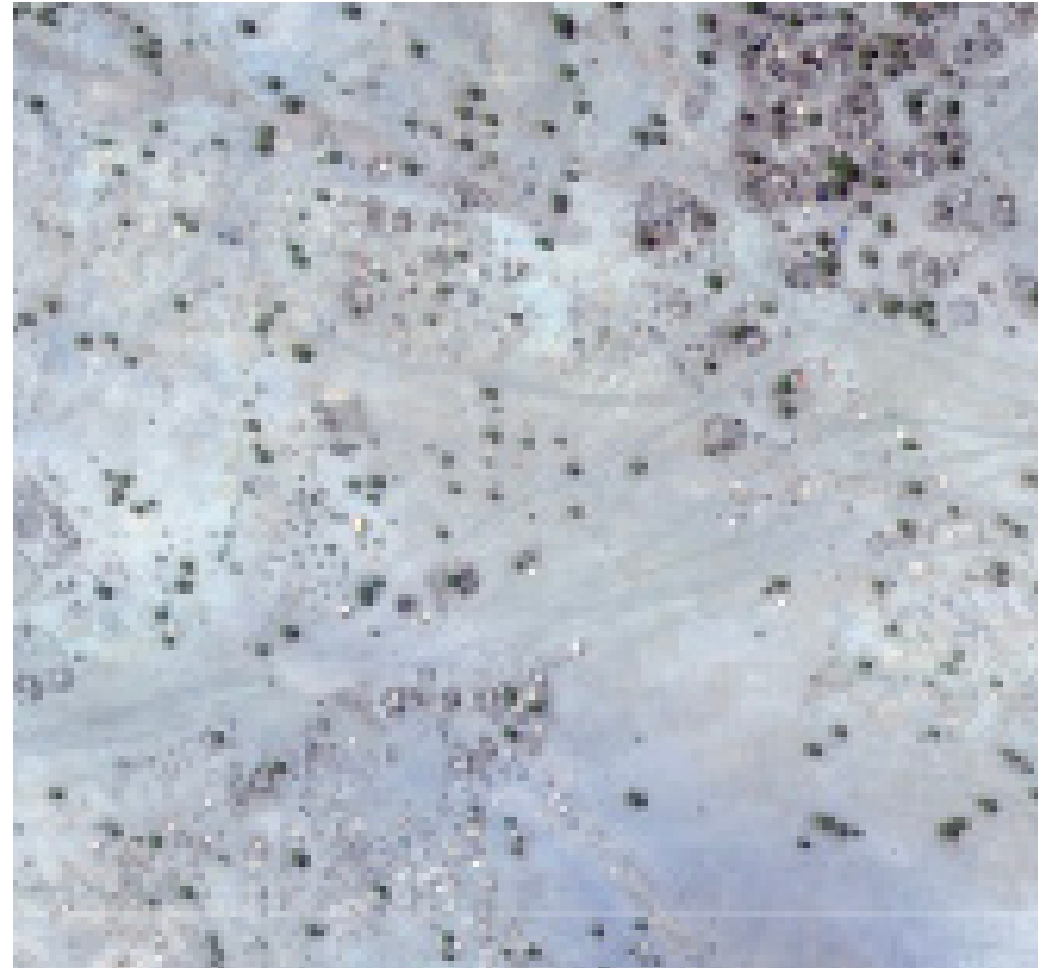
Figure 11: Midjiguilta, 25 March 2022



Supported by reports of 3196 individuals arriving in Midjiguilta from Sudan, Figure 1 shows a satellite image of Midjiguilta from March 2022, while Figure 2 shows an image of the same location from May 2023. A comparison of these two images suggests an increase in the number of shelters in the settlement between March 2022 and May 2023.* When comparing the current images of all settlements assessed in this factsheet (Figures 2, 4, 6, 8, 10 and 12), new shelters in Midjiguilta appear to be distributed among existing shelters, rather than concentrated in on area as they are in Adré, Borota and Goun-gour. According to the flood susceptibility presented in Map 2, Midjiguilta and the surrounding area likely face a low-very low risk of flooding.

*Considering the length of time between these images, it is possible that some of the new shelters in May 2023 had appeared before the beginning of the conflict in Sudan.

Figure 12: Midjiguilta, 14 May 2023



As of 14 July:

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 **3196** estimated total arrivals from Sudan.

 **903** of total arrivals estimated to be returnees.

REACH did not collect data in Midjiguilta during the cross-border assessment. In June 2023, REACH field teams reported that access to Midjiguilta was difficult due to its geographical isolation and nearby water channels. Despite its relatively low susceptibility to flooding (see Map 1), REACH teams noted that rain may prevent access to Midjiguilta for several hours as water channels become too deep to traverse. Further triangulation of this observational data is recommended.



METHODOLOGY OVERVIEW

In the absence of a comprehensive needs assessment on the situation in Sudan and neighbouring countries, the assessment consisted of two components to cover, as best as possible, the situation in areas of origin in Sudan as well as the situation of recent arrivals in Chad.

The first component consisted of a structured household survey with returnees and refugees crossing the Sudan-Chad border. In total, 406 households were interviewed about their current situation and movement intentions for this first round of data collection.

Household survey interviewees were also asked to act as a key informant (KI) and report on behalf of their community in their settlement of origin about the situation. The indicative findings about the remaining population can be found in the [West Darfur Situation Overview](#).

All interviews were conducted in informal sites and in reception centres close to the Sudanese border by trained enumerators.

Due to the purposive sampling, findings for the survey component are not generalisable with a known level of precision and should be considered indicative only. As more information becomes available, it is recommended to triangulate findings with updated information where possible.

The second component consisted of the collection of satellite imagery and analysis of secondary data to understand the location, structure and flood susceptibility of six spontaneous settlements on the Chad border, before and after the beginning of the conflict and subsequent displacement.

The methodology used to calculate flood susceptibility used is based on multicriteria analysis including the following eight criteria. The Proximity of the river and the drainage density obtained from Sudan hydrographic network layer, the slope, the elevation and topographic wetness index obtained from SRTM (Shuttle Radar Topography Mission) imagery, the soil water holding capacity obtained from Soil Geographic Databases, the rainfall data from 1993 to 2023 obtained from CHIRPS (Climate Hazards Group Infrared Precipitation with Station data) and the land use land cover data of 2022 obtained from ESRI land use and land cover.

The criteria were normalized and weighted using AHP (Analytic Hierarchy Process), and combined using weighted linear combination through the formula below:

$$= \sum_{i=1}^n wixi$$

X = criteria and w= weight

For more information on the sampling tools and methods used, please refer to the Research Terms of Reference (ToR) and the Detailed Analysis Plan (DAP), which will be made available [here](#).

New data, analysis, and outputs from other assessments on the Sudan conflict will be made available on the [Sudan Crisis Thread](#) on the REACH website.

ABOUT REACH

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).