

## Somalia Flood Exposure Methodology Note

### Analysis for 2024 HNRP

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This technical note summarises the methodology used to calculate the number of people potentially exposed to flooding in Somalia in the 2024 Somalia Humanitarian Needs and Response Plan ([HNRP](#)). The UN OCHA Centre for Humanitarian Data worked with a wide range of technical partners to develop a methodology that was then endorsed by the Somalia ICCG and HCT.

Daily [FloodScan](#) (1998-2022) & [WorldPop \(2020 UN Adjusted\) raster](#) data was analysed to gain understanding of flood conditions across Somalia for both March-April-May (MAM) and October-November-December (OND) seasons. FloodScan daily flood fraction Standard Flood Exposure Depiction (SFED) was aggregated to yearly seasonal maximum fraction composites for both the MAM and OND seasons for all years of historical FloodScan data (1998-2022).

The yearly seasonal SFED composites were then processed/reclassified in two distinct ways:

1. Composites reclassified to binary using a 20 percent flood fraction threshold.
2. Composites masked to just remove any flood fraction values < 0.05 percent and the flood fraction (0-100 percent) retained.

All composites in both sets of processed yearly-seasonal flood fraction rasters were then multiplied by the WorldPop (2020 UN Adjusted) population estimate raster to create two sets of yearly seasonal flood exposure rasters. These were then aggregated at the second administrative level via zonal statistics (sum) to obtain the estimated population exposure per district for each season across all years for each set. These estimates were converted to the percent of population exposed by dividing the estimates by the total population per district (from World Pop raster). The percent exposure figure was then applied to the updated 2024 population data set (UN OCHA, UNFPA Methodology) to obtain updated population exposure estimates. These data were further aggregated to administrative level 1.

Ranges for exposure were estimated using percentiles for both the MAM and OND seasons per administrative level. As ECMWF seasonal forecast predicts an above average precipitation season for MAM 2024, the range of population exposed was based on the 50th-95th percentile levels. Since there was no available data to inform predictions for OND 2024, the 25-75th percentile values were used to bound the range. The lower and upper limits of the ranges were

calculated at the administrative level using all of the historical yearly seasonal flood exposure estimates. The two sets of range estimates were combined conservatively by taking the maximum value for both the upper and lower bounds for each season.

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