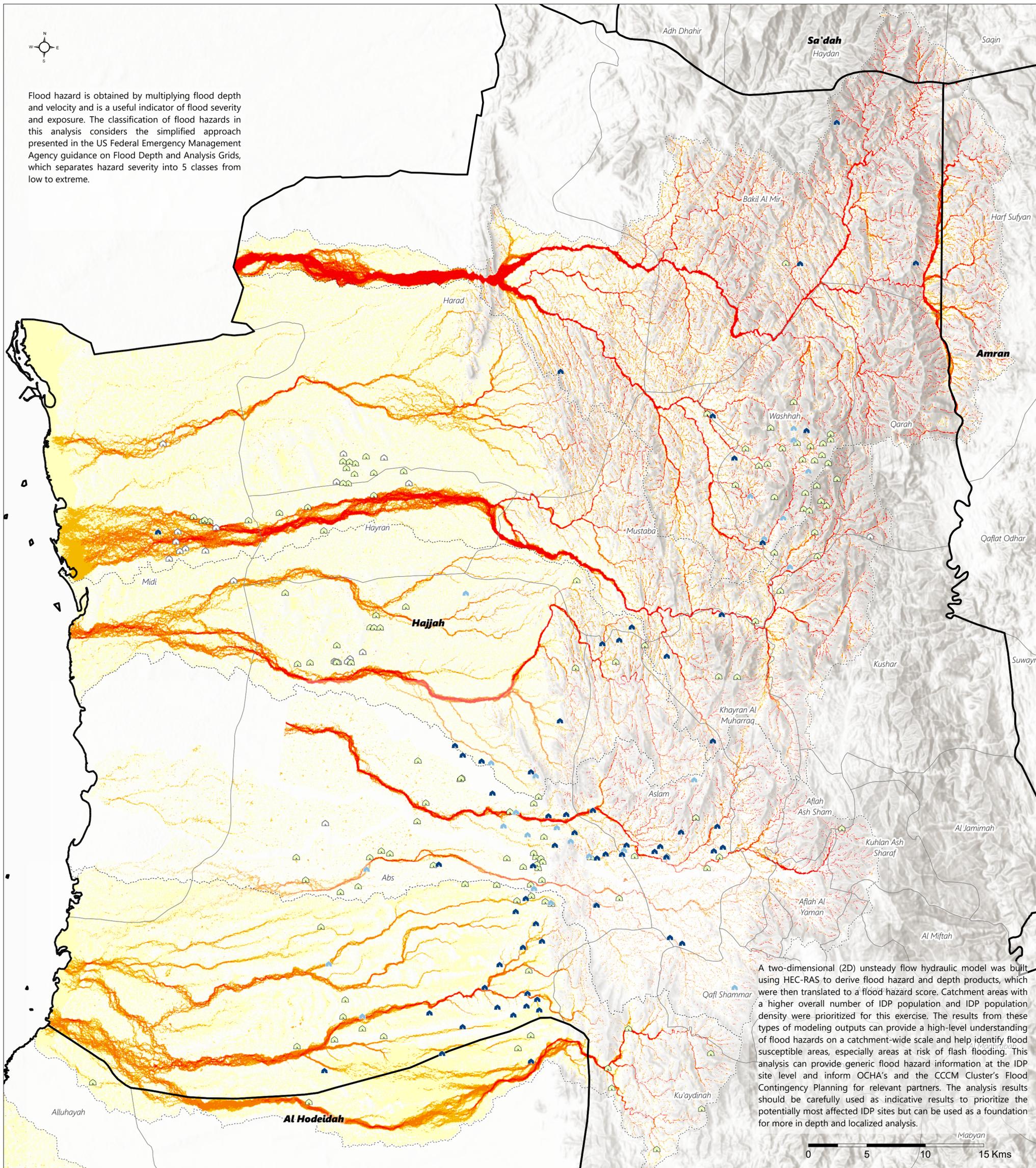
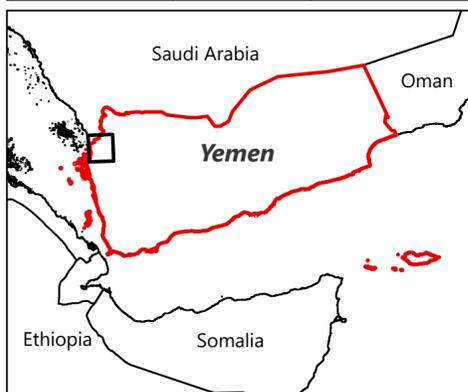




Flood hazard is obtained by multiplying flood depth and velocity and is a useful indicator of flood severity and exposure. The classification of flood hazards in this analysis considers the simplified approach presented in the US Federal Emergency Management Agency guidance on Flood Depth and Analysis Grids, which separates hazard severity into 5 classes from low to extreme.



A two-dimensional (2D) unsteady flow hydraulic model was built using HEC-RAS to derive flood hazard and depth products, which were then translated to a flood hazard score. Catchment areas with a higher overall number of IDP population and IDP population density were prioritized for this exercise. The results from these types of modeling outputs can provide a high-level understanding of flood hazards on a catchment-wide scale and help identify flood susceptible areas, especially areas at risk of flash flooding. This analysis can provide generic flood hazard information at the IDP site level and inform OCHA's and the CCCM Cluster's Flood Contingency Planning for relevant partners. The analysis results should be carefully used as indicative results to prioritize the potentially most affected IDP sites but can be used as a foundation for more in depth and localized analysis.



**Map description:**  
 This map shows the Estimated Flood Hazard Scores of internally displaced person (IDP) hosting sites and the modelled flood hazard in Hajjah governorate. REACH developed estimated scores by triangulating four different data sources, including CCCM Site Report, CCCM Flood Report, REACH flood hazard (HEC-RAS) models and 2022 REACH-CCCM National IDP Site Flood Risk Analysis. **Overall Flood Hazard Scores should be considered as indicative estimates due to the challenges in triangulating data sources with highly varying methodologies. Also, IDP site locations might be inaccurate and are missing for about 50% of sites across Yemen. For a detailed Methodology Note, please see REACH's Resource Centre.**

Flood Hazard (m2/s)	Flood Scores	# IDP Sites	# Managed IDP Sites
>0 - 0.2 (Low - No hazard)	High hazard	64	60
>0.2 - 0.5 (Medium)	Medium hazard	24	9
>0.5 - 1.5 (High)	No/Low hazard	129	20
>1.5 - 2.5 (Very High)	Unknown	22	0
>2.5 (Extreme)			

- Data sources:**
- IDP Sites: [CCCM IDP Hosting Site Master List \(December 2022\)](#)
  - Flood Data: [REACH Flood Hazard \(HEC-RAS\) Models \(2022\)](#)  
[CCCM Site Report \(April 2021 - October 2022\)](#)  
[CCCM Flood Report \(June 2021 - January 2023\)](#)  
[2022 CCCM National IDP Site Flood Risk Analysis, incl Sub-National Cluster Coordinators' Estimated Flood Scores \(March 2022\)](#)
  - Admin Boundaries: OCHA
  - Background: ESRI, NGA, USGS, CGIAR

**Note:**  
 Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by the REACH partners, associated, donors mentioned on this map.  
 Coordinate System: GCS WGS 1984  
 File: REACH\_YEM\_Map\_CCCM\_Hajjah\_Flood\_Hazard\_IDPSites\_24Jan2023\_A2\_V2  
 Contact: [mapping@impact-initiatives.org](mailto:mapping@impact-initiatives.org)