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# YEMEN - Hodeidah Governorate

## Hazard Analysis - Landslides Susceptibility map

For humanitarian purposes only  
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The landslide susceptibility map for Hodeidah Governorate, Yemen, was produced using a GIS-based multi-criteria evaluation combined with the Analytical Hierarchy Process (AHP). A hydrologically corrected Digital Elevation Model (DEM) was used to derive key topographic and hydrological factors, including slope, aspect, curvature, relative relief, topographic wetness index (TWI), and stream power index (SPI). Additional factors such as lithology, land use/land cover (LULC), and distance from rivers were also included. All layers were standardized to a 30 m resolution in UTM Zone 38N and reclassified into five susceptibility classes. Factor weights were assigned through AHP pairwise comparisons using Saaty's 1-9 scale, and their consistency was verified using the consistency ratio. Finally, a weighted overlay analysis was applied to generate the landslide susceptibility map, classifying the area from very low to high susceptibility.



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|----------------------------------|---|
| <b>Administrative boundaries</b> | <b>Landslides susceptibility risk classes</b> |
| Governorates                     | 1 - Very low                                  |
| Districts                        | 2 - Low                                       |
| Non - assessed districts         | 3 - Moderate                                  |
| Main towns                       | 4 - High                                      |

Data sources: Digital Elevation Model DEM (ALOS World 3D (AW3D30), 30 m resolution, Japan Aerospace Exploration Agency (JAXA) Tile: ALPSMLC30\_N013E043); Aspect, Curvature, Relief 3\*3, Slope, and Topographic Wetness Index (TWI) (Derived from the AW3D30 30 m DEM ); Distance from River (Generated using Euclidean distance analysis based on the manual delineation of the river network from ESRI World Imagery basemap); Land Use / Land Cover LULC (ESA WorldCover 10 m 2021, Version 2.0 : Dataset: ESA\_WorldCover\_10m\_2021\_v200\_N12E042\_Map); Geology (derived from the digitizing of the Simplified geological Map of Yemen (Van der Gun & Ahmed 1995)); Hillshade (Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community . All datasets were resampled to 30 m spatial resolution to match the DEM.

*Note: Data, designations and boundaries contained on this map are not warranted to be error-free and do not imply acceptance by REACH partners, associates or donors mentioned on this map.*