CCCM CLUSTER
Supporting displaced communities

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European Union
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Multi-Hazard Analysis (MHA)

District-level multi-hazard risk for IDP populations (CCCM operational areas)

CCCM Cluster Yemen
December 2025

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Objectives & Context

Context and Rationale

Protracted conflict + climate shocks + fragile infrastructure = compounding risks for IDPs

4.8M+ IDPs in hazard-affected areas; many in informal or collective sites (HNRP, 2025)

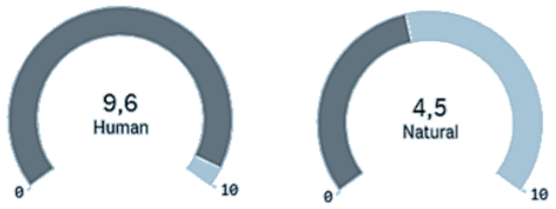
Existing monitoring tools capture discrete elements, such as site-level flood exposure, incident-based reporting, or conflict events. Still, they are rarely combined into a unified framework that reflects the overall risk environment in IDP-hosting districts.

Aim: consolidate hazards, exposure, and vulnerability into a single, explainable index to inform DRR and planning guiding prioritization, and supporting actions that ensure the safety, service continuity, and dignity of IDPs.

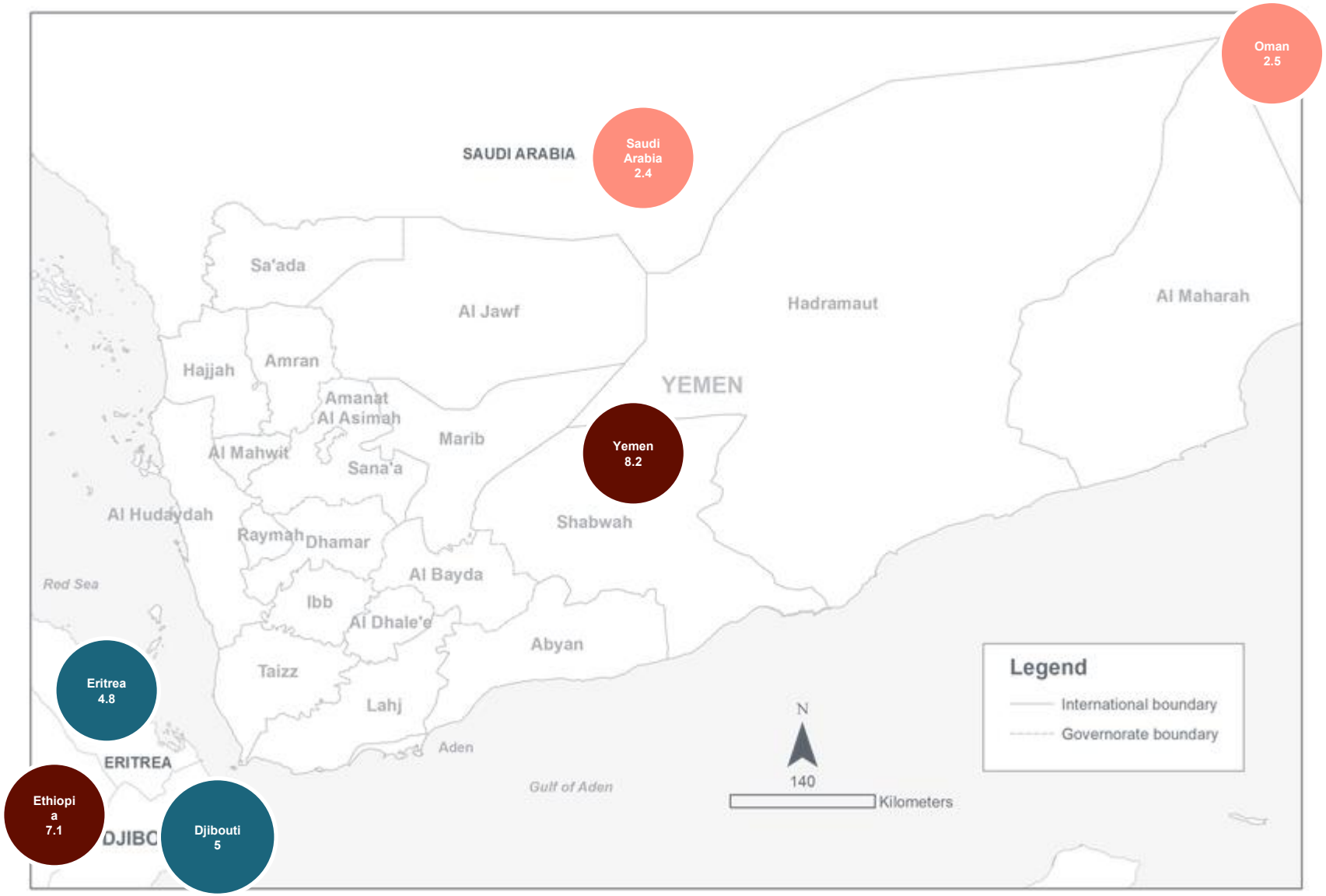
INFORM Risk Profile– Yemen 2025

Yemen ranks **3rd out of 191** countries on the INFORM Risk Index, reflecting very high risk driven by projected conflict probability, ongoing conflict intensity, and high vulnerability to hazards—after South Sudan and Somalia

Hazards & exposure



INFORM is a global, open-source composite index (0–10) developed by the European Commission JRC and partners to compare crisis risk across countries. It combines three dimensions—Hazard & Exposure, and Vulnerability (higher scores indicate higher risk).



https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Risk-Profile

Objectives

Main Objective:
To conduct a **district-level multi-hazard risk analysis** that informs CCCM preparedness planning by identifying high-risk districts, guiding prioritization, and supporting actions that ensure the safety, service continuity, and dignity of IDPs.

Specific Objectives:

To identify key hazards that most affect CCCM operational areas in Yemen using core CCCM monitoring and incident records and standard conflict-event data, humanitarian disaster reporting, and the latest flood hazard analysis from 2024–2025.

To identify districts, IDP population groups most vulnerable to predominant hazards.

Develop a district-level **severity scoring system** to support prioritization for disaster risk reduction (DRR) and humanitarian planning.

Coverage: CCCM operational areas; natural and anthropogenic hazards
(125 districts (admin-2) in Yemen)

Reference period: 2024–2025 for recency and comparability

Displacement-specific layers: number of sites and IDP caseload included

Methodology

02

Methodology| Overall approach

$$\text{Risk} = (\text{Hazard} + \text{Exposure} + \text{Vulnerability})/3$$

In this assessment, we analyzed hazards, exposure, and vulnerability across Yemen, based on the following definitions*:

- Hazard: a process, phenomenon, or human activity that may cause loss of life, injury, or other health impacts, property damage, social and economic disruption, or environmental degradation. Hazards may be natural or anthropogenic in origin.

- Exposure: the situation of people, infrastructure, housing, production capacities, and other tangible human assets located in hazard-prone areas.

- Vulnerability: the conditions determined by physical, social, economic, and environmental factors or processes that increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards. Components of vulnerability include susceptibility, which is the likelihood of suffering harm, and coping capacity, the capacity to reduce negative consequences.

Based on **World Risk Index structure**, tailored to Yemen

Three pillars: **Hazard, Exposure, Vulnerability**

Composite risk reflects compounding effects

*United Nations Office for Disaster Risk Reduction (UNDRR). 2017. The Sendai Framework Terminology on Disaster Risk Reduction. "Hazard". Accessed 27 August 2025. https://www.undrr.org/terminology/hazard

Methodology| Overall approach

Phase 1: Baseline analysis using secondary data

In Phase 1, the analysis is run on the subset of districts and indicators with sufficient secondary data coverage (including SMT, flood hazard analysis, conflict events, IPC, HeRAMS and MEACAM).

Phase 2: Consultation Process to address data gaps

Phase 2 expands coverage to all CCCM operational districts through structured consultations that focus only on indicators where gaps or weaknesses were identified.

Phase 3: Validation and refinement

Phase 3 focuses on validating and refining the combined dataset before computing the multi-hazard risk index.

The dataset was reviewed with SNCCs and technical partners. Adjustments to thresholds, aggregation rules, or weights are made only where there is a clear and documented rationale.

Site-level data and other sub-district information are aggregated to the district level and combined with district-level hazard and vulnerability layers under a single, consistent scoring system.

Results are not intended to identify or rank specific sites for immediate action.

Data collection| Secondary Data Sources

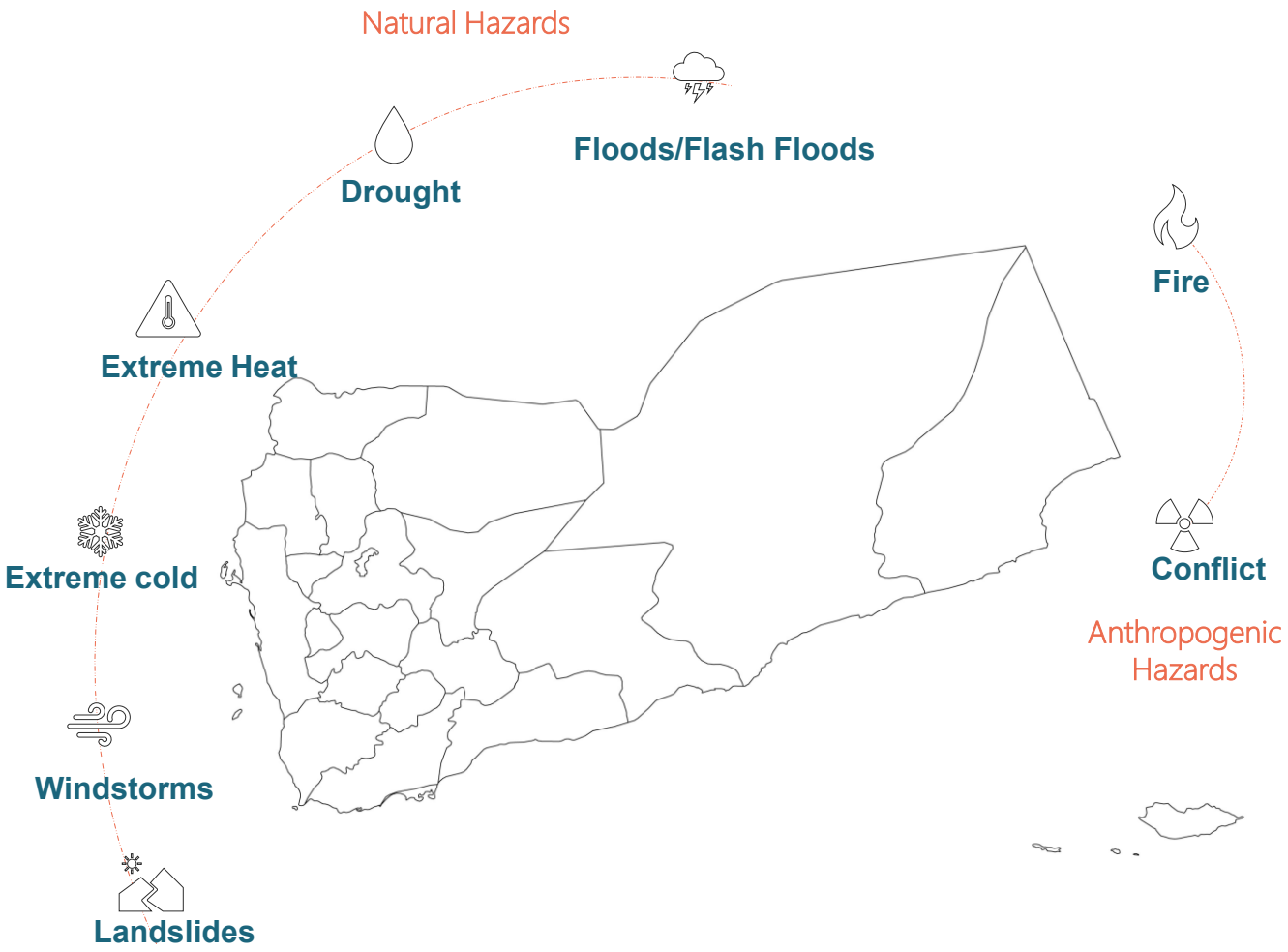
Dataset	Spatial unit	Years	Limitations	Key indicators derived
Site Monitoring Tool (SMT)	Site/ District	2024–2025	Subject to key-informant and presence bias; excludes non-managed/unknown sites; coverage varies by round and partner presence; recall/visibility bias for recent hazards	% sites reporting hazards; % IDP caseload in High flood exposure; security/eviction threat shares
CCCM Incident Database	Site/ District	2024–2025	Non-standard formats, duplicates, uneven spatial reporting	Counts by hazard type
Flood Hazard Risk Analysis	Site/ District	2024	Inherits uncertainties from input layers; validation against recent flood footprints may be incomplete.	% sites / % caseload in High/Very High flood; or normalized district flood score
ACLED (Conflict Events)	District	2024–2025	Reporting/media access bias; geolocation uncertainty; coding variation by actor; temporal lags	Events, fatalities
IPC (Integrated Food Security Classification)	District	2024–2025	Not microdata: classification reflects synthesis at a given time and may lag rapid changes	IPC phase mapped to districts; Phase 1–5 to 0–100
OCHA Population Figures	District	2024	Updates are infrequent; displacement may shift the population; boundary misalignments.	IDP Population numbers
CCCM IDP Sites Master List	Site/District	2025	Site IDs may change; inactive sites	# CCCM sites; IDP caseload per district
Protection Analysis	District	2025	The analysis is still ongoing; some indicators related to CCCM, Shelter, Child Protection, and GBV have not yet been updated, as data gathering is still in progress.	Indicators on documentation, FHH, disability, age,
Middle East Anticipatory Climate Action Model (MEACAM)	Subdistrict	2024	-	Effect size calculated between the average NDVI during low and normal-rainfall seasons. Natural hazards to the site during the reporting period
HeRAMS (Health Resources Availability Mapping System)	District	2024	-	Structural permanence (temporary facilities share), Functionality status, Patient accessibility, Diseases Early Warning System (DEWS) coverage

[1] Where 2025 data are not yet available (e.g. population estimates), the latest 2024 data are used. The reference period for events and site-level conditions is 2024–2025.
[2] For SMT-derived indicators: hazard-presence flags combine all SMT rounds from 2024 to 2025 to derive district-level hazard presence. For SMT-derived Vulnerability indicators, most recent round per district were used.

Hazards Identifications

Hazard profiling establishes the foundation of the risk index by identifying, categorizing, and scoring the main hazards that affect IDPs and displacement sites in Yemen. The profiling process captures both natural hazards and human-induced risks, ensuring a comprehensive picture of the multi-hazard environment. These hazard types were identified based on the secondary data review.

- Natural Hazards: floods/flash floods, drought, extreme heat and cold, windstorms, landslides.
- Anthropogenic Hazards: fires, conflict-related incidents (including shelling, clashes, and civilian targeting).



Secondary data selection and gap analysis

- **Indicators with good coverage and no major gaps.**
  For some datasets, such as IPC, HeRAMS, and ACLED, coverage in CCCM operational districts was sufficiently complete and consistent. For these indicators, secondary data are used as-is, and no consultation questions are included, in order to avoid burdening partners where reliable data already exist.

- **Indicators with partial or poor coverage.**
  Other key datasets, including the SMT, MEACAM, the flood hazard dataset, and the Protection Analysis, presented substantial gaps or inconsistencies in some districts. These indicators form the core of the consultation tool, which is designed specifically to fill these gaps.

- **Districts with full coverage across all indicators.**
  The gap analysis identified eleven districts (admin-2) where all selected indicators are fully available from secondary data, across all pillars. These districts are treated as fully covered: they are analyzed using secondary data only and are excluded from the consultation process, while still being used as a benchmark for checking the consistency of consultation-based scores elsewhere.

Governorate	District code	District Name	Number of managed sites in the district	Total IDPs in District (OCHA)
Ad Dali	YE3006	Ad Dali	15	23223
Ad Dali	YE3003	Qatabah	22	37984
Aden	YE2403	Al Mansurah	1	53956
Aden	YE2401	Dar Sad	13	67775
Al Hodeidah	YE1820	Al Khukhah	49	89730
Al Hodeidah	YE1819	Hays	17	30243
Lahj	YE2515	Tuban	19	33701
Marib	YE2613	Marib	130	351128
Marib	YE2612	Marib City	63	1130367
Taiz	YE1521	Al Maafer	16	32397
Taiz	YE1514	Ash Shamayatayn	12	64229

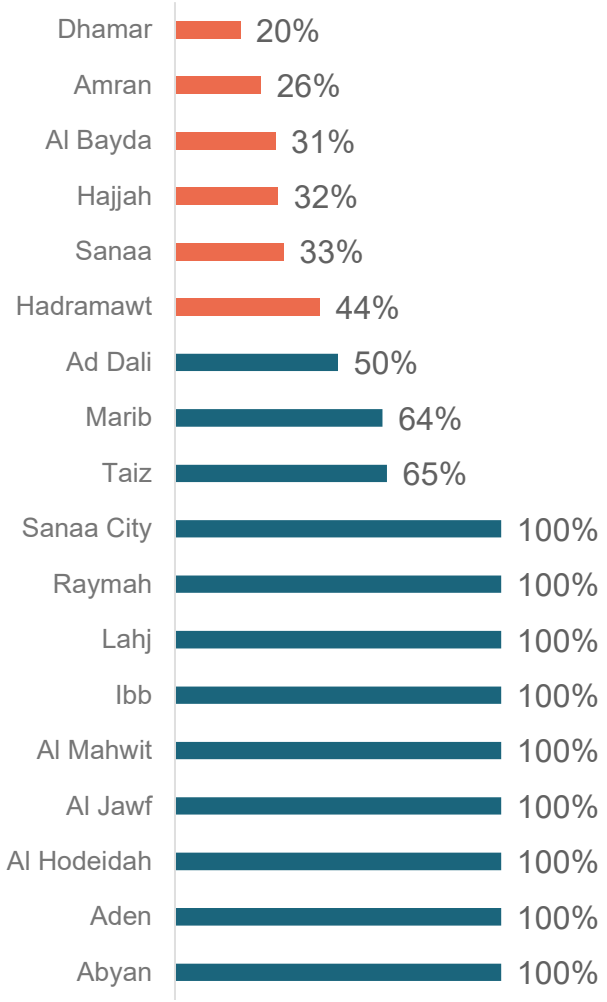
Data collection| Consultation Process

- A Kobo-based survey was developed around the selected indicators, mirroring the structure and scoring options used in the secondary data framework.

- Target respondents include CCCM partners, Area Coordinators, SNCCs, and relevant DRR focal points with direct operational knowledge of sites and IDPs in each district.

Governorate	Covered in consultations	Total number of districts
Abyan	8	8
Ad Dali	1	4
Aden	5	5
Al Bayda	4	13
Al Hodeidah	18	18
Al Jawf	12	12
Al Maharah	0	6
Al Mahwit	5	5
Amran	5	19
Dhamar	1	5
Hadramawt	4	9
Hajjah	6	19
Ibb	14	14
Lahj	5	5
Marib	5	9
Raymah	2	2
Sadah	0	13
Sanaa	4	12
Sanaa City	4	4
Shabwah	0	8
Socotra	0	1
Taiz	11	18
Total number of districts	114	209

% of districts covered per Gov in both SDR and consultations



Results at governorate level are comprehensive in governorates with high coverage, while in places with low coverage, results should be seen as indicative rather than fully comprehensive.

Data collection| Coverage

Governorate	District
Abyan	Ahwar
Abyan	Al Mahfad
Abyan	Khanfar
Abyan	Lawdar
Abyan	Mudiyah
Abyan	Sibah
Abyan	Zinjibar
Ad Dali	Ad Dali
Ad Dali	Al Durayhimi
Ad Dali	Al Husayn
Ad Dali	Qatabah
Aden	Al Burayqah
Aden	Al Mansurah
Aden	Al Mualla
Aden	Ash Shaykh Othman
Aden	Dar Sad
Aden	Jayshan
Aden	Khur Maksar
Aden	Kritar - Sirah
Al Bayda	Al Bayda City
Al Bayda	Al Malaijm
Al Bayda	Al Matammah
Al Bayda	As Sawadiyah
Al Bayda	Rada

Governorate	District
Al Hodeidah	Ad Dohi
Al Hodeidah	Al Hijaylah
Al Hodeidah	Al Jarrahi
Al Hodeidah	Al Khukhah
Al Hodeidah	Al Mansuriyah
Al Hodeidah	Al Marawiah
Al Hodeidah	Al Mighlaf
Al Hodeidah	Al Munirah
Al Hodeidah	Al Qanawis
Al Hodeidah	Alluhayah
Al Hodeidah	As Sukhnah
Al Hodeidah	At Tuhayta
Al Hodeidah	Az Zaydiah
Al Hodeidah	Az Zuhrah
Al Hodeidah	Bajil
Al Hodeidah	Bayt Al Faqih
Al Hodeidah	Hays
Al Hodeidah	Jabal Ras
Al Hodeidah	Zabid
Amran	Amran
Amran	Dhibain
Amran	Huth
Amran	Khamir
Amran	Kharif

Governorate	District
Al Jawf	Al Ghayl
Al Jawf	Al Hazm
Al Jawf	Al Humaydat
Al Jawf	Al Khalq
Al Jawf	Al Maslub
Al Jawf	Al Mutun
Al Jawf	Az Zahir - Al Jawf
Al Jawf	Barat Al Anan
Al Jawf	Khab wa Ash Shaf
Al Jawf	Kharab Al Marashi
Al Jawf	Rajuzah
Al Mahwit	Al Khabt
Al Mahwit	Al Mahwit City
Al Mahwit	Ar Rujum
Al Mahwit	Melhan
Al Mahwit	Shibam Kawkaban
Dhamar	Dhamar City
Hadramawt	Al Abr
Hadramawt	Al Mukalla City
Hadramawt	Al Qatn
Hadramawt	Ash Shihr
Hajjah	Aslam
Hajjah	Khayran Al Muharraq
Hajjah	Kuaydinah
Hajjah	Kushar
Hajjah	Mustaba
Hajjah	Washhah

Governorate	District
Ibb	Adh Dhiar
Ibb	Al Odayn
Ibb	Al Qafr
Ibb	An Nadirah
Ibb	Ar Radmah
Ibb	As Saddah
Ibb	Dhi As Sufal
Ibb	Far Al Odayn
Ibb	Hazm Al Odayn
Ibb	Ibb
Ibb	Jiblah
Ibb	Mudhaykhirah
Ibb	Yarim
Lahj	Al Hawtah
Lahj	Al Madaribah Wa Al Arah
Lahj	Al Malah
Lahj	Radfan
Lahj	Tuban
Lahj	Tur Al Bahah
Marib	Al Abdiyah
Marib	Bidbadah
Marib	Harib Al Qaramish
Marib	Majzar
Marib	Marib
Marib	Marib City
Marib	Sirwah

Governorate	District
Raymah	Al Jafariyah
Raymah	Bilad Attaam
Sanaa	Bani Hushaysh
Sanaa	Bani Matar
Sanaa	Hamdan
Sanaa	Sanhan wa Bani Bahlul
Sanaa City	Ath Thawrah
Sanaa City	Bani Al Harith
Sanaa City	Ma'in
Sanaa City	Shuub
Taiz	Al Maafer
Taiz	Al Makha
Taiz	Al Misrakh
Taiz	Al Mudhaffar
Taiz	Al Qahirah
Taiz	Al Wazi'iyah
Taiz	Ash Shamayatayn
Taiz	Dhubab
Taiz	Jabal Habashi
Taiz	Maqbanah
Taiz	Mawza
Taiz	Sabir Al Mawadim
Taiz	Salah

Scoring System overview

1

Normalization

converting all indicators into the same scale (0–1) so we can compare and combine them fairly, even if they start in different units (%, counts, distances, or scores).
0 = lowest observed severity
1 = highest observed severity

2

Weighting

Indicators are combined using agreed weights for analysis.

3

Aggregation

Component indices are combined to form the Risk Index

4

Risk classes

Risk scores are classified into Risk Categories/Risk Levels for prioritization.

Very High	High	Medium	Low	Very Low	Unknown Severity

Final risk class determined using **natural breaks (Jenks).**

Indicators and weights

Hazards Exposure

Natural — 67%

- Floods/Flash Floods 25%
- Drought 20%
- Extreme Heat 10%
- Extreme cold 2%
- Windstorms 7%
- Landslides 3%

Anthropogenic — 33%

- Fire 3%
- Conflict 30%

Susceptibility
Dependency & Fragility

Economic susceptibility — 14%

- Food insecurity 8%
- No income 6%

WASH vulnerability — 25%

- Inadequate latrine access at sites 5%
- Inadequate shower access at sites 2%
- Water quantity gap 4%
- Water availability and quality 6%
- Primary latrine type 4%
- Water acceptability (taste/odor..) 4%

Shelter vulnerability — 9%

- Households without shelter 7%
- Dangerous structures present 2%

Dependency profile — 8%

- Older persons (60 2%
- Persons with disabilities 4%
- Female-headed households 2%

Protection — 4%

- Eviction threat 4%

Coping Capacity
Service Access & Protection

Communication access — 3%

- Mobile coverage 2%
- Internet coverage 1%

Health system capacity & access — 19%

- Health facility structural permanence 3%
- Health facility functionality status 6%
- Patient accessibility 5%
- DEWS coverage 5%

Safety, privacy & dignity — 15%

- Civil documentation needs 3%
- Fire safety measures 3%
- Shelter locks functional (%) 3%
- Gender-separated WASH facilities 2%
- Site in/near community 2%
- WASH locks functional (latrines 2%

Market access & affordability — 3%

- Items not available/affordable at market 3%

$$\text{Risk} = (\text{Hazard} + \text{Exposure} + \text{Vulnerability})/3$$

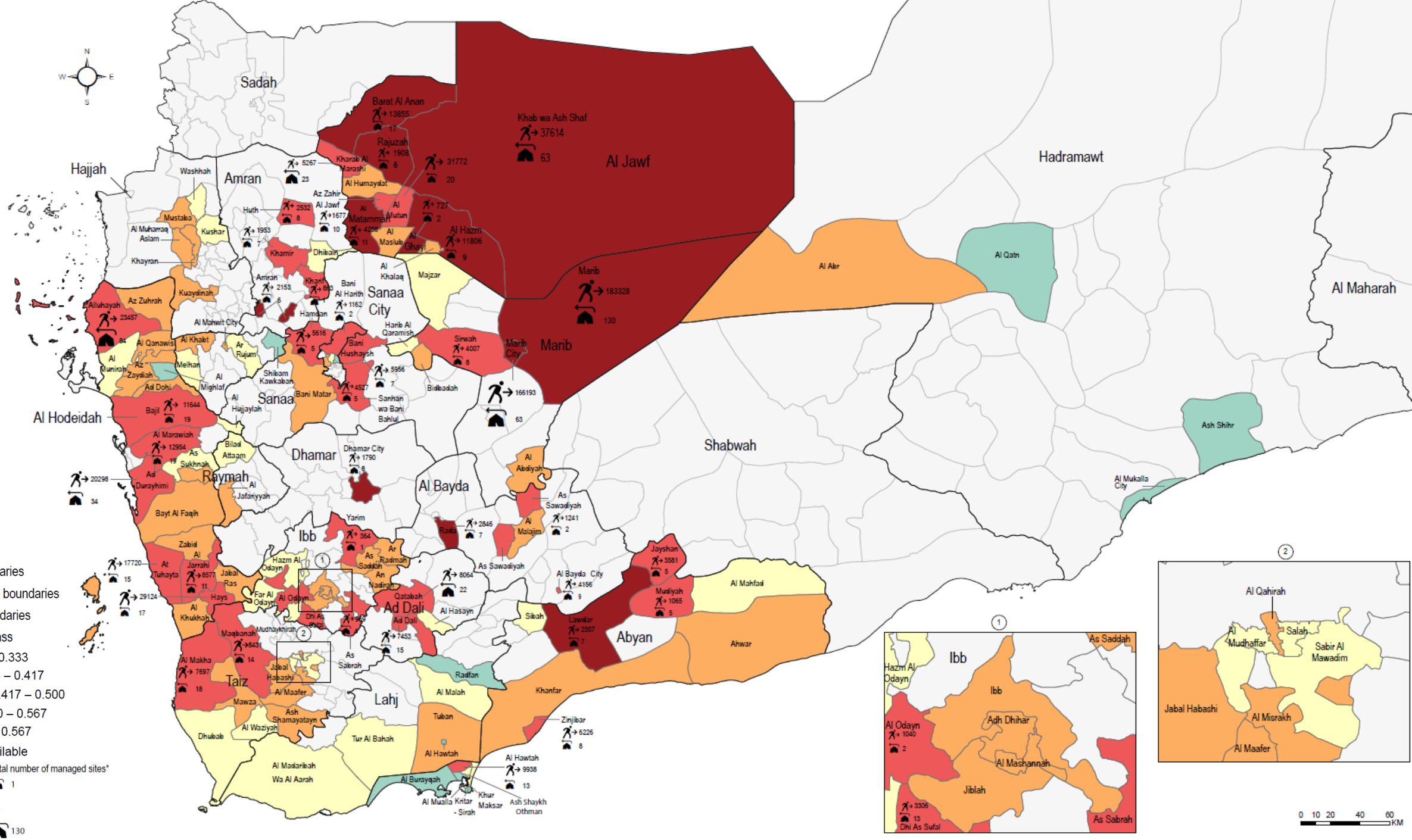
Weights reflect expert consultation

Limitations

- The analysis focuses on a subset of **key hazards**, so it does not capture the full risk landscape across all possible hazards.
- **Short time windows** and non-aligned timeframes across datasets (and no explicit **seasonal** / ENSO modelling) may bias comparisons and limit representativeness.
- Aggregating **site-level data to district level** can mask important intra-district variations, especially in large or heterogeneous districts.
- The lack of **satellite imagery** limits validation of hazard exposure and localized risks; findings are specific to **CCCM operational areas** and may not reflect conditions in non-managed sites.
- **Secondary data coverage** for some key sources (e.g. SMT, Protection Analysis, MECAM) was weaker than expected, constraining indicator availability.
- The index includes only districts with **complete data (125 district out of 220-**CCCM operational areas only**)**; districts with missing indicators are excluded and added in a separate sheet.
- **Some qualitative factors are hard to quantify,** Social cohesion, informal coping mechanisms, and sudden access changes are not fully captured by indicators.

Key Findings

Key Findings- Overview of Multi-Hazard Risk



Administrative boundaries

- Governorates boundaries
- Districts boundaries

Multi-hazard Risk Class

- Very Low: ≤ 0.333
- Low: > 0.333 – 0.417
- Medium: > 0.417 – 0.500
- High: > 0.500 – 0.567
- Very High: > 0.567
- Data not available

Total number of IDPs* 364 – 183328

Total number of managed sites* 1 – 130

*: This data is only shown on the map for High and Very High risk districts

Final risk class determined using natural breaks (Jenks).

Key Findings- Overview of Multi-Hazard Risk

Distribution of Risk Scores

Districts (n)
125

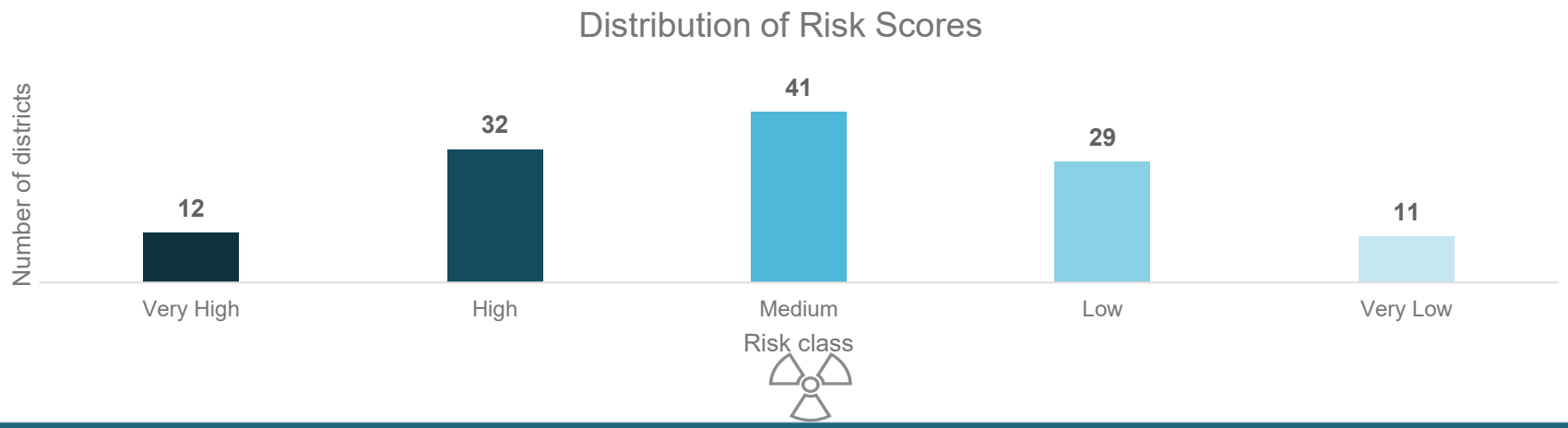
Mean Risk Index
0.47

Min–Max
0.18–0.67

•Most districts fall into the **Medium** and **High** categories, representing the bulk of Yemen's displacement-affected areas.

•**12 districts** fall under **Very High** risk, but these areas are a priority for follow-up and multi-sectoral interventions due to compound hazards and very low coping capacity.

•**Low** and **Very Low** risk districts represent a minority and are typically characterized by lower hazard intensity or relatively stronger coping systems.



Key Findings-

Distribution of assessed districts by multi-hazard risk score

(Highest to Lowest Risk)

Number of districts per risk class

Very High	12
High	32
Medium	41
Low	29
Very Low	11

Risk ranking is based on the composite multi-hazard risk index and includes only districts with complete data. Risk classes are defined using natural breaks.

Governorate	District name	Risk Index	Risk Class
Al Jawf	Al Hazm	0.67	Very High
Marib	Marib City	0.62	Very High
Al Jawf	Barat Al Anan	0.62	Very High
Al Bayda	Rada	0.62	Very High
Al Jawf	Khab wa Ash Shaf	0.62	Very High
Al Jawf	Rajuzah	0.62	Very High
Marib	Marib	0.60	Very High
Al Jawf	Al Ghayl	0.60	Very High
Abyan	Lawdar	0.58	Very High
Al Jawf	Al Matammah	0.58	Very High
Dhamar	Dhamar City	0.58	Very High
Amran	Amran	0.58	Very High
Taiz	Al Makha	0.57	High
Al Jawf	Kharab Al Marashi	0.57	High
Al Hodeidah	Al Marawiah	0.57	High
Amran	Huth	0.57	High
Amran	Khamir	0.57	High
Sanaa	Bani Hushaysh	0.57	High
Sanaa	Sanhan wa Bani Bahlul	0.57	High
Al Bayda	As Sawadiyah	0.55	High
Al Hodeidah	Alluhayah	0.55	High
Al Hodeidah	Bajil	0.55	High
Abyan	Zinjibar	0.55	High
Ad Dali	Qatabah	0.55	High
Sanaa City	Bani Al Harith	0.55	High
Al Jawf	Az Zahir - Al Jawf	0.55	High
Amran	Kharif	0.55	High
Al Hodeidah	Hays	0.53	High
Aden	Dar Sad	0.53	High
Ad Dali	Ad Dali	0.53	High
Ibb	Yarim	0.53	High
Ibb	As Sabrah	0.53	High
Ibb	Dhi As Sufal	0.53	High
Taiz	Maqbanah	0.53	High
Al Jawf	Al Mutun	0.53	High
Al Hodeidah	Al Jarrahi	0.53	High
Al Hodeidah	At Tuhayta	0.53	High
Sanaa	Hamdan	0.53	High
Marib	Sirwah	0.53	High
Ibb	Al Odayn	0.52	High
Abyan	Mudiyah	0.52	High
Abyan	Jayshan	0.52	High
Al Bayda	Al Bayda City	0.52	High
Al Hodeidah	Ad Durayhimi	0.52	High
Taiz	Mawza	0.50	Medium
Hadramawt	Al Abr	0.50	Medium
Ibb	Ibb	0.50	Medium
Sanaa City	Main	0.50	Medium
Al Bayda	Al Malajim	0.50	Medium
Taiz	Al Qahirah	0.50	Medium
Al Hodeidah	Zabid	0.50	Medium
Sanaa	Bani Matar	0.50	Medium
Marib	Bidbadah	0.50	Medium
Al Hodeidah	Al Qanawis	0.48	Medium
Al Hodeidah	Ad Dohi	0.48	Medium
Al Hodeidah	Al Khukhah	0.48	Medium
Lahj	Tuban	0.48	Medium
Ibb	Ar Radmah	0.48	Medium
Al Jawf	Al Maslub	0.48	Medium
Al Hodeidah	Bayt Al Faqih	0.48	Medium
Marib	Al Abdiyah	0.48	Medium
Ibb	An Nadirah	0.47	Medium
Ibb	Adh Dhihar	0.47	Medium
Al Jawf	Al Humaydat	0.47	Medium
Al Jawf	Al Khalaq	0.47	Medium
Hajjah	Mustaba	0.47	Medium
Al Hodeidah	Az Zuhrah	0.47	Medium
Al Hodeidah	Al Mansuriyah	0.47	Medium
Al Hodeidah	Jabal Ras	0.47	Medium
Al Mahwit	Al Khabt	0.47	Medium
Al Mahwit	Al Mahwit City	0.47	Medium
Ibb	Al Mashannah	0.47	Medium
Taiz	Jabal Habashi	0.45	Medium
Taiz	Ash Shamayatayn	0.45	Medium
Ibb	Jiblah	0.45	Medium
Abyan	Ahwar	0.45	Medium
Abyan	Khanfar	0.45	Medium
Taiz	Al Misrakh	0.45	Medium
Hajjah	Aslam	0.45	Medium
Hajjah	Kuaydinah	0.45	Medium
Al Hodeidah	Az Zaydiah	0.45	Medium
Taiz	Al Maafer	0.43	Medium
Hajjah	Khayran Al Muharraq	0.43	Medium
Ibb	As Saddah	0.43	Medium
Raymah	Al Jafariyyah	0.43	Medium
Aden	Ash Shaykh Othman	0.42	Low
Lahj	Al Malah	0.42	Low
Lahj	Tur Al Bahah	0.42	Low
Ibb	Mudhaykhirah	0.42	Low
Abyan	Al Mahfad	0.42	Low
Aden	Khur Maksar	0.40	Low
Abyan	Sibah	0.40	Low
Al Hodeidah	Al Hujjaylah	0.40	Low
Al Mahwit	Melhan	0.40	Low
Taiz	Sabir Al Mawadim	0.40	Low
Taiz	Al Mudhaffar	0.40	Low
Hajjah	Kushar	0.40	Low
Hajjah	Washhah	0.40	Low
Marib	Majzar	0.40	Low
Taiz	Al Waziyah	0.38	Low
Al Hodeidah	Al Munirah	0.38	Low
Al Hodeidah	As Sukhnah	0.38	Low
Marib	Harib Al Qaramish	0.38	Low
Aden	Al Mualla	0.38	Low
Ibb	Hazm Al Odayn	0.38	Low
Ibb	Far Al Odayn	0.38	Low
Sanaa City	Ath Thawrah	0.38	Low
Lahj	Al Madaribah Wa Al Aarah	0.38	Low
Amran	Dhibain	0.38	Low
Taiz	Salah	0.37	Low
Ad Dali	Al Hasayn	0.37	Low
Al Mahwit	Ar Rujum	0.37	Low
Taiz	Dhubab	0.35	Low
Raymah	Bilad Attaam	0.35	Low
Lahj	Al Hawtah	0.33	Very Low
Aden	Al Burayqah	0.32	Very Low
Lahj	Radfan	0.32	Very Low
Hadramawt	Al Mukalla City	0.32	Very Low
Sanaa City	Shuub	0.32	Very Low
Al Mahwit	Shibam Kawkaban	0.32	Very Low
Hadramawt	Al Qatn	0.32	Very Low
Al Hodeidah	Al Mighlaf	0.32	Very Low
Aden	Al Mansurah	0.25	Very Low
Hadramawt	Ash Shihr	0.25	Very Low
Aden	Kritar - Sirah	0.18	Very Low

Key Findings- Average Multi-Hazard Risk Index by Governorate

(district averages within covered districts)

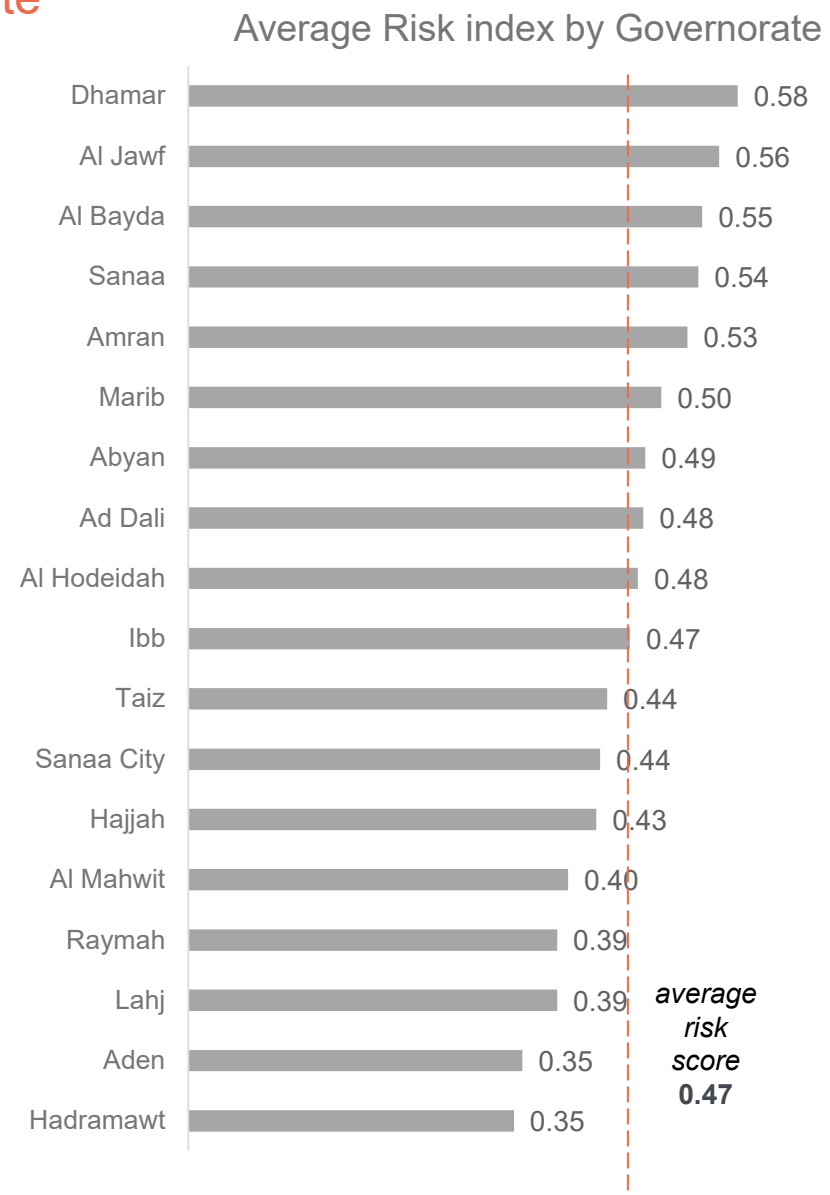
•**Dhamar, Al Bayda, Al Jawf, Sana'a, and Amran** record the **highest average risk scores**, consistent with higher hazard/exposure/vulnerability and lower coping indicators.

•Governorates such as **Taiz, Ibb, and Al Hodeidah** fall close to the national average, masking significant **within-governorate variation** between high- and low-risk districts.

•**Aden and Hadramawt** show the **lowest average risk scores**, largely due to lower exposure levels and relatively stronger access to services, despite persistent localized vulnerabilities.

Governorate averages are calculated using covered districts only and may not represent the situation across all districts. See Slides 13-14 (Coverage) for representativeness details. For example, conditions in Abs district (Hajjah) are severe, but we were unable to cover it through SDR and consultations, which affects Hajjah's average score.

Governorate averages can mask significant district-level variation. A governorate may appear "medium" overall while hosting very high-risk districts, underscoring the importance of district-level analysis for operational decision-making.



Key Findings- Highest-Risk Districts

•The **highest-risk districts** are concentrated in **Al Jawf, Marib, Al Bayda, Abyan,** Dhamar **and Amran**.
•These districts combine:
•**High hazard scores** (0.6–0.8) from both natural and anthropogenic hazards.
•**High exposure**, with large IDP caseloads and sites in hazard-prone areas.
•**High vulnerability and weak coping capacity**, especially in Al Jawf.

•**Al Jawf and Marib** feature repeatedly in the top ranks, indicating persistent multi-dimensional risk and the need for sustained, multi-sectoral support.

Top **Highest-Risk** districts

Governorate	District	Risk Class	Risk Index	Hazard	Exposure	Vulnerability
Al Jawf	Al Hazm	Very High	0.67	0.7	0.7	0.6
Al Jawf	Barat Al Anan	Very High	0.62	0.6	0.5	0.75
Marib	Marib City	Very High	0.62	0.8	0.7	0.35
Al Bayda	Rada	Very High	0.62	0.7	0.6	0.55
Al Jawf	Khab wa Ash Shaf	Very High	0.62	0.7	0.5	0.65
Al Jawf	Rajuzah	Very High	0.62	0.6	0.6	0.65
Marib	Marib	Very High	0.6	0.7	0.7	0.4
Al Jawf	Al Ghayl	Very High	0.6	0.6	0.6	0.6
Abyan	Lawdar	Very High	0.58	0.6	0.5	0.65
Al Jawf	Al Matammah	Very High	0.58	0.6	0.5	0.65
Dhamar	Dhamar City	Very High	0.58	0.7	0.6	0.45
Amran	Amran	Very High	0.58	0.7	0.6	0.45

Characteristics:
•High natural + anthropogenic hazard
•Significant exposure
•Low coping capacity

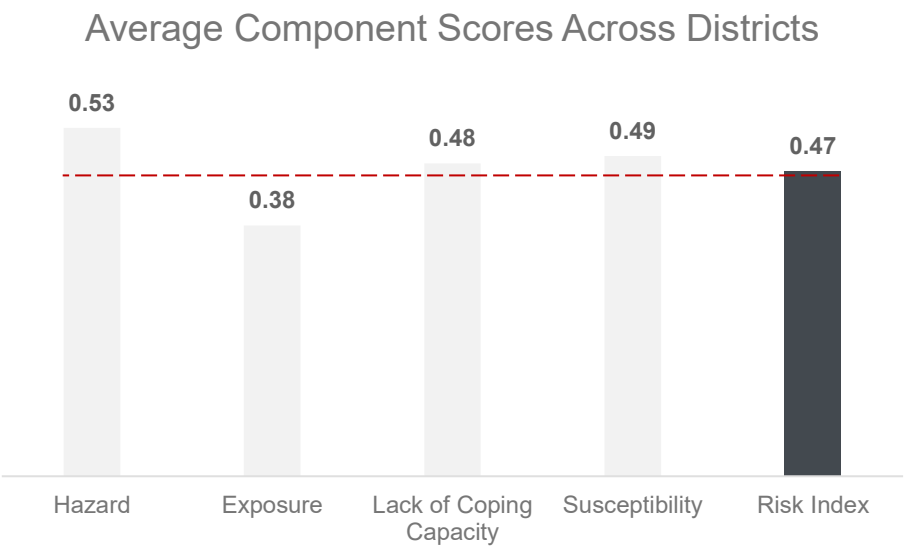
Key Findings- Overview of Component Scores

•On average, **hazard levels (0.53)** are slightly higher than vulnerability and coping capacity, indicating a generally high-risk environment across many districts.

•**Exposure is lower on average (0.38)**, meaning not all districts with high hazard have large IDP populations or sites in the most exposed areas.

•**Vulnerability (0.48) and lack of coping capacity (0.48)** are both relatively high, showing that many districts have structural weaknesses (services, livelihoods, protection) that can amplify the impact of shocks.

• The highest composite scores are observed where all four components align: **high hazard + high exposure + high vulnerability + low coping capacity** (as seen in Al Jawf, Marib, Dhamar City, etc.).



Key Findings- Average Hazard Index by Governorate

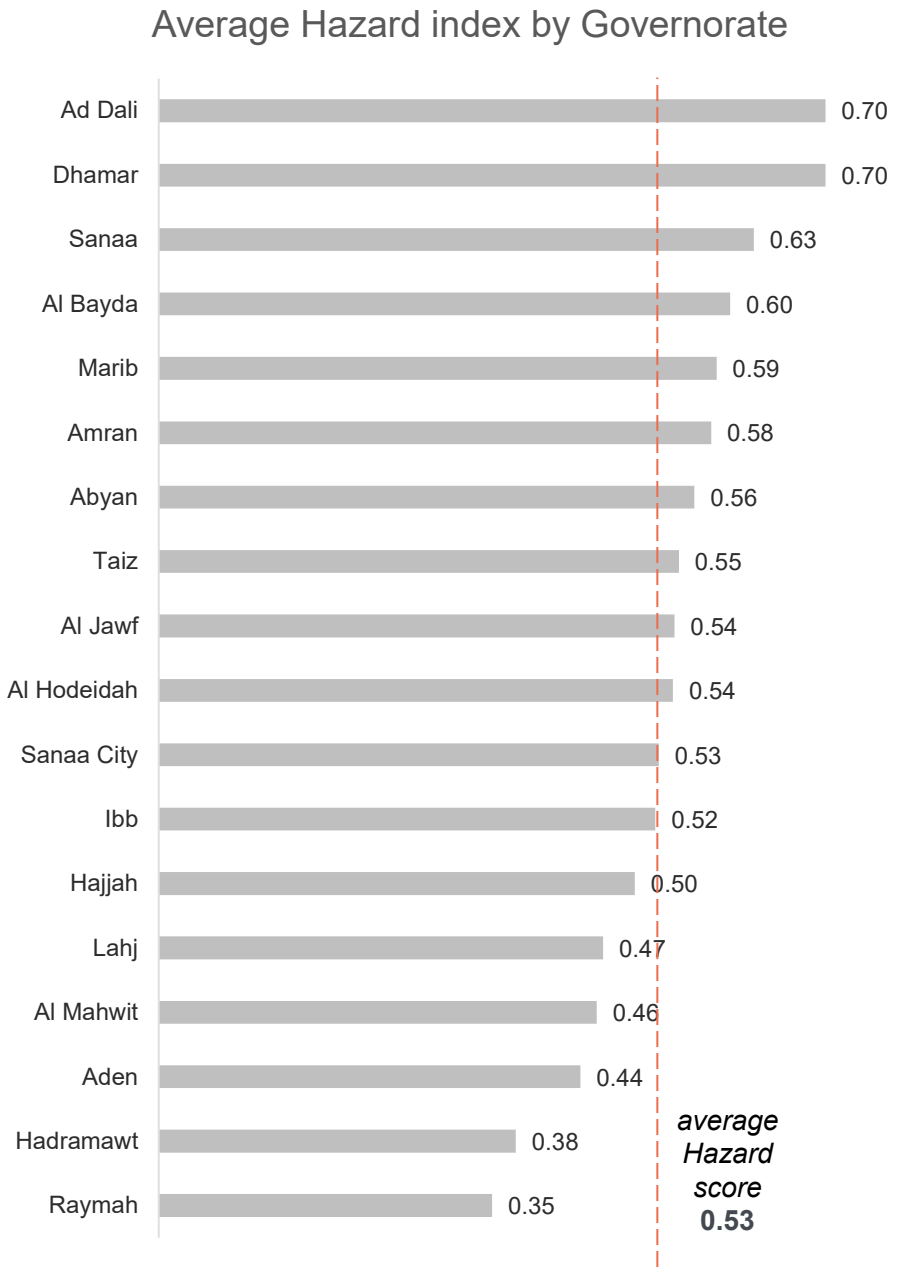
•**Ad Dali and Dhamar** record the **highest average hazard scores**, showing higher hazard index values across selected indicators, natural hazards (floods, drought, extreme temperatures) and conflict-related risks.

•Governorates such as **Sana'a, Al Bayda, and Marib and others** also exceed the national average, indicating sustained multi-hazard pressure across multiple districts.

•**Aden, Hadramawt, and Raymah** fall well below the national average, suggesting comparatively lower hazard intensity, though localized risks remain.

Higher average hazard scores do not always translate into higher overall risk, underscoring the role of exposure, vulnerability, and coping capacity in shaping final risk outcomes.

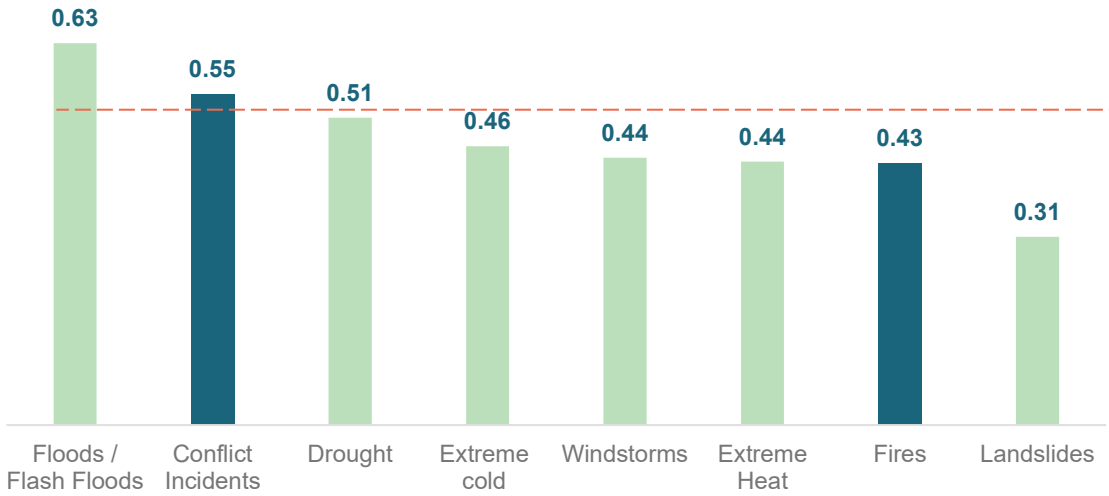
Governorate averages are calculated using covered districts only and may not represent the situation across all districts. See Slides 13-14 (Coverage) for representativeness details. For example, conditions in Abs district (Hajjah) are severe, but we were unable to cover it through SDR and consultations, which affects Hajjah's average score.



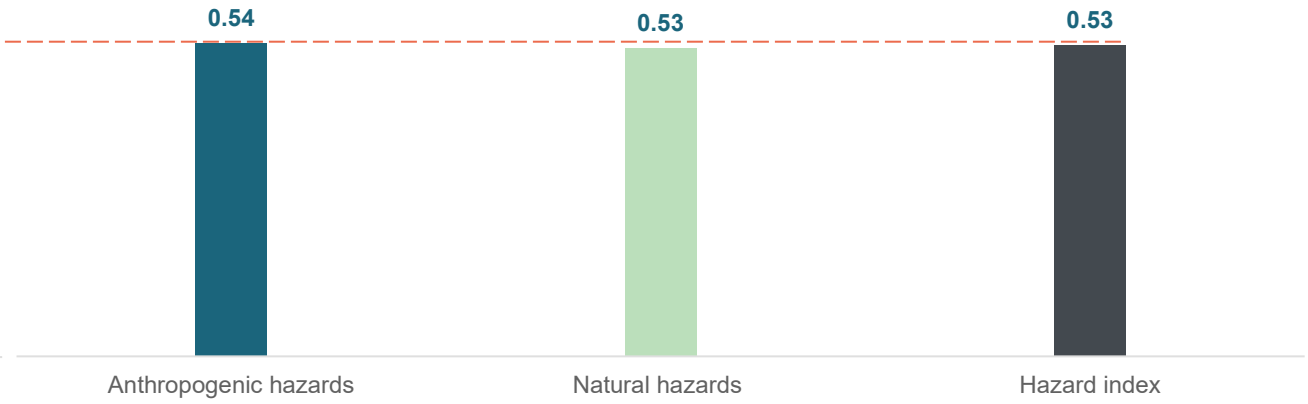
Key Findings- Overall Hazard Profile and Dominant Risk Drivers

•Natural and anthropogenic hazards contribute at broadly similar levels within the hazard component; conflict incidents remain one of the highest drivers
•**Floods and flash floods** are the most significant hazard in all assessed districts, particularly affecting **coastal zones and wadi-adjacent sites**.
•**Drought** represents a major **slow-onset hazard**, which can be expected to contribute to food insecurity and compound vulnerability over time.
•**Extreme temperatures (heat and cold)** play a secondary but widespread role, especially in **coastal plains (heat)** and **highlands (cold)**.

Contribution of Individual Hazard Types to Overall Risk



Contribution of Anthropogenic and Natural Hazards to Overall Risk

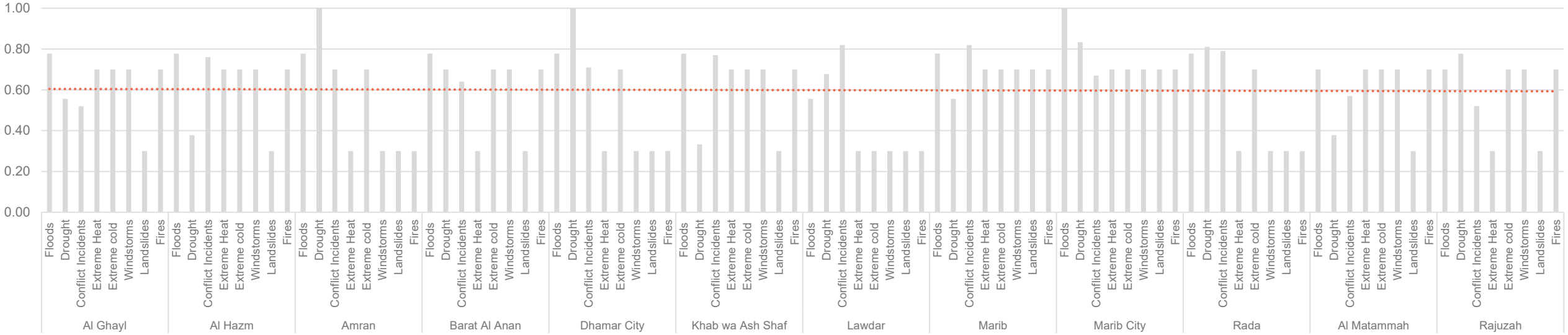


Values are relative (0–1 normalized) scores within this index and reflect the indicator distribution/weighting; they are not absolute, directly comparable measures of hazard severity.

Key Findings- Hazard Profile of Very High-Risk Districts

- High risk is rarely driven by one hazard alone. Districts with the highest risk scores consistently experience **compound hazard exposure**, particularly the combination of **floods, conflict, and climate-related stresses**.
- Flood hazard is consistently high across very high-risk districts
- Conflict-related hazards show sharper spatial differentiation, elevating risk even where natural hazards are moderate.

Comparison of Hazard Scores in Very High-Risk Districts



Dashed line = average hazard score across all hazard types shown (0–1 normalized).

values reflect relative intensity within this index, not absolute hazard severity.

Key Findings- Average IDPs Exposure Index by Governorate

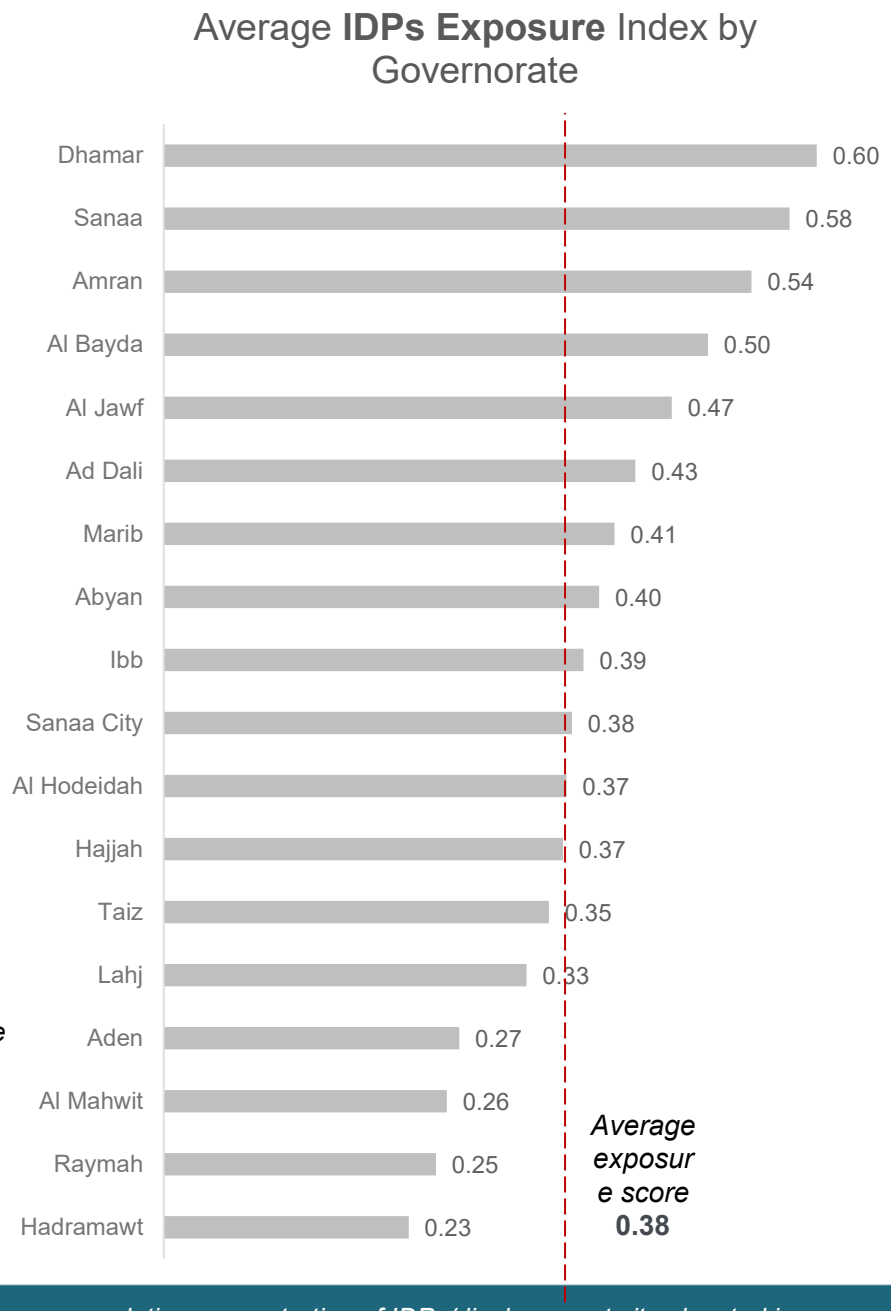
- **Dhamar, Sana'a, and Amran** show the **highest average exposure scores**, reflecting high concentrations of IDPs and displacement sites located in hazard-prone areas.

- Governorates such as **Al Bayda, Al Jawf, Marib, and Abyan** fall around the national average, where IDPS exposure significantly amplifies risk when combined with high hazard or vulnerability.

- **Aden, Hadramawt, Raymah, and Al Mahwit** record the **lowest exposure levels**, helping explain lower overall risk scores despite the presence of hazards.

Within the index framework (H × E × V), exposure amplifies risk: governorates with moderate hazard levels can still score high overall when IDP exposure is high.

Governorate averages are calculated using covered districts only and may not represent the situation across all districts. See Slides 13-14 (Coverage) for representativeness details. For example, conditions in Abs district (Hajjah) are severe, but we were unable to cover it through SDR and consultations, which affects Hajjah's average score.



Exposure = relative concentration of IDPs/displacement sites located in areas with higher hazard scores (0–1 normalized).

Key Findings- Average Vulnerability Index by Governorate

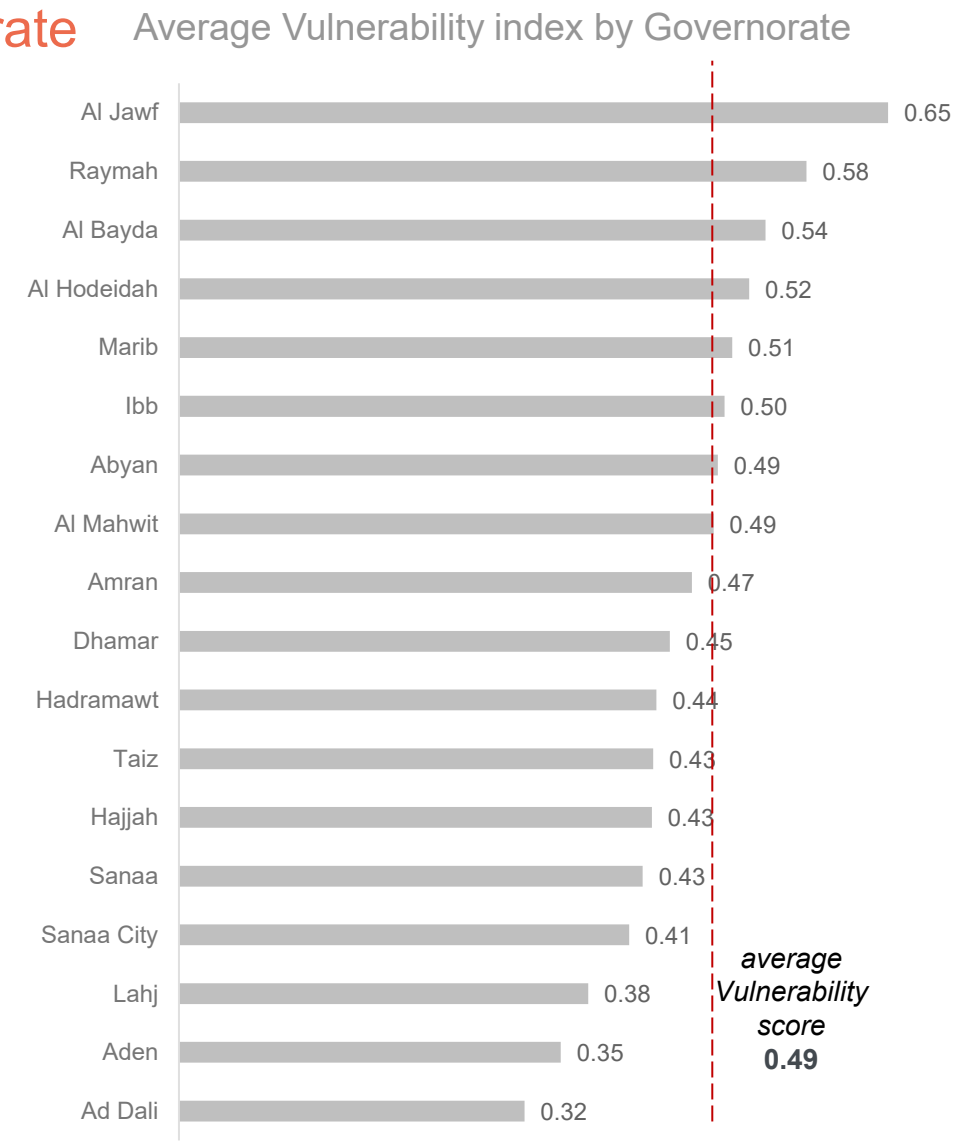
•**Al Jawf and Raymah** record the **highest average vulnerability scores**, driven by pronounced service gaps, infrastructure weaknesses, and limited coping mechanisms across multiple districts.

•Governorates such as **Al Bayda, Al Hodeidah, Marib, and Ibb** cluster around or above the national average, reflecting widespread structural vulnerability despite differing hazard profiles.

•**Aden, Lahj, and Ad Dali** show the lowest vulnerability scores, reflecting comparatively better access to basic services and infrastructure and stronger coping capacity indicators (within the vulnerability component).

Governorates with moderate hazard scores may still experience high overall risk when vulnerability remains elevated.

Governorate averages are calculated using covered districts only and may not represent the situation across all districts. See Slides 13-14 (Coverage) for representativeness details. For example, conditions in Abs district (Hajjah) are severe, but we were unable to cover it through SDR and consultations, which affects Hajjah's average score.

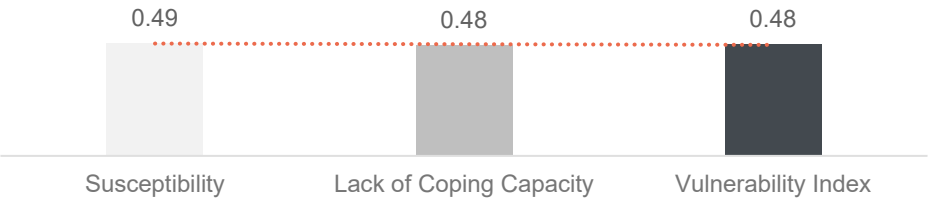


Vulnerability reflects underlying sensitivity/coping capacity (service gaps, infrastructure, access constraints), independent of hazard occurrence

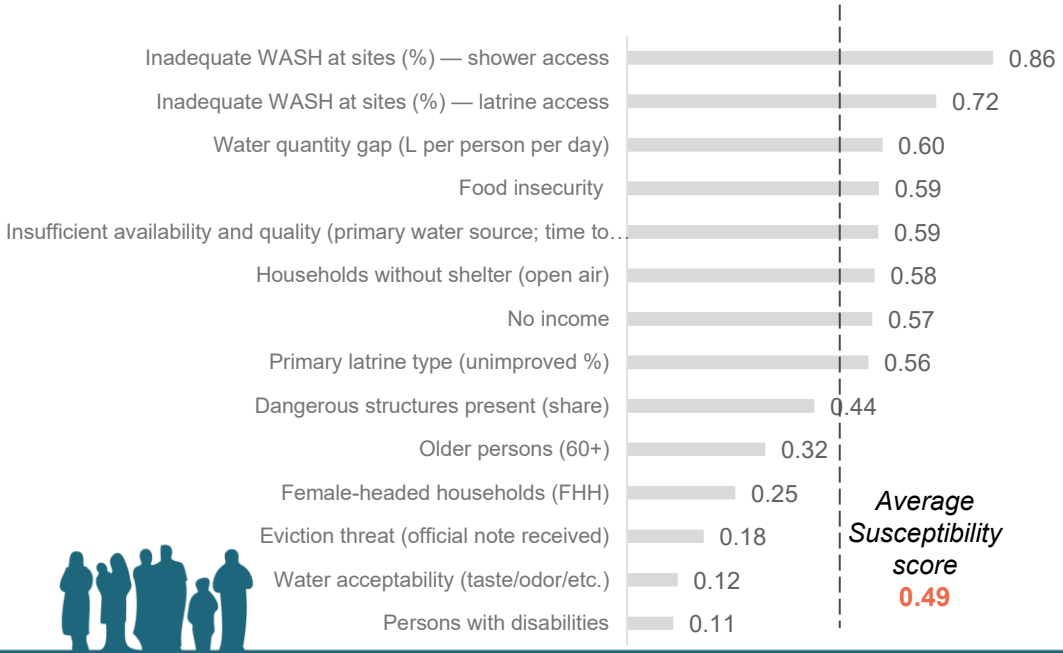
Key Findings- Vulnerability Drivers Across Assessed Districts

Vulnerability in high-risk districts is driven less by demographic factors and more by **service gaps, infrastructure weaknesses, and limited coping mechanisms**, particularly in **WASH, market access, and site-level preparedness**.

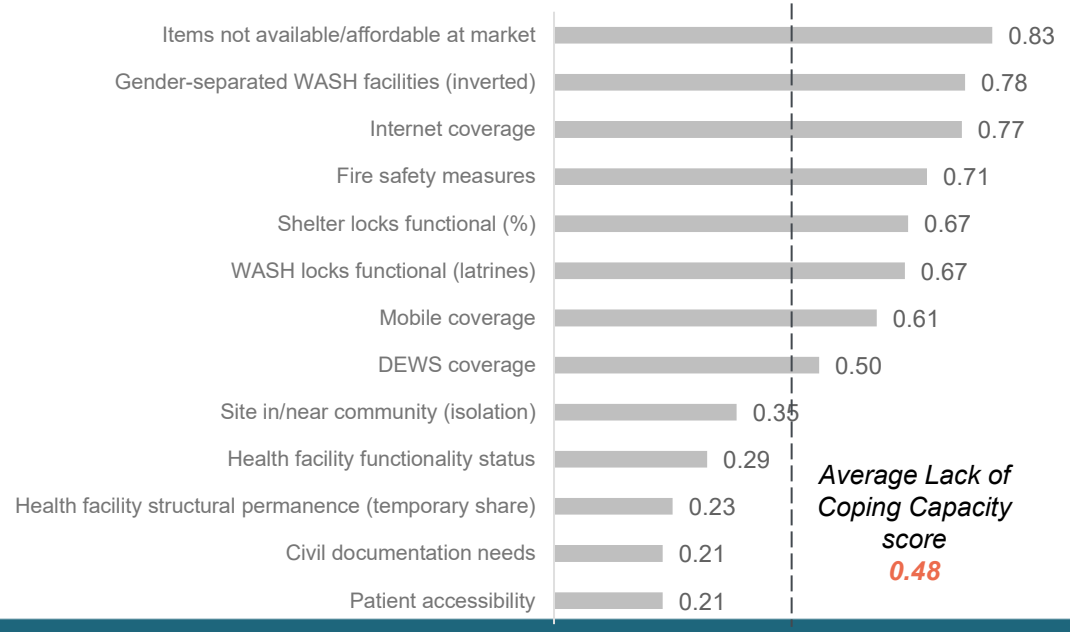
Average Vulnerability scores (0–1)



Average **Susceptibility** indicators scores across assessed districts



Average **Lack of Coping Capacity** indicators scores across assessed districts

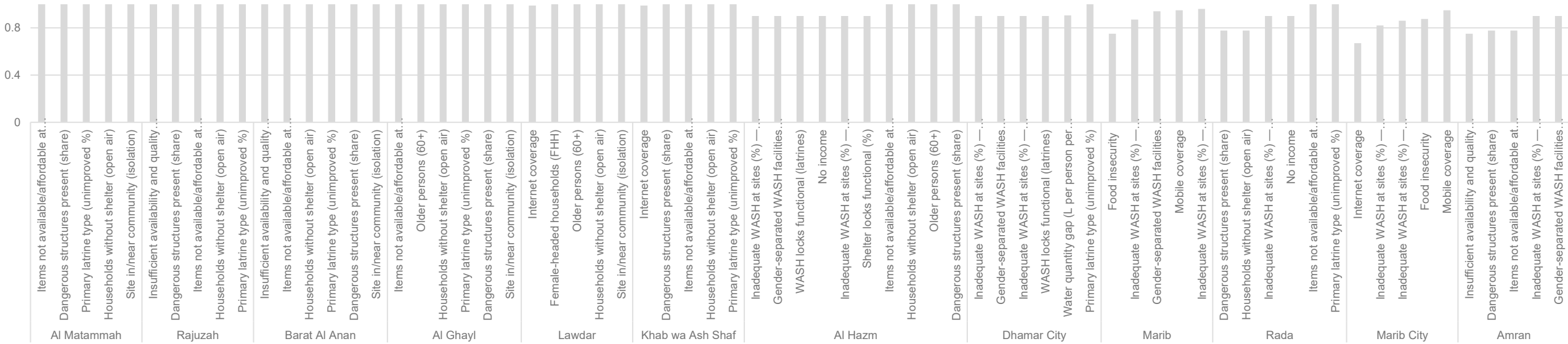


Key Findings- Vulnerability Profile of Very High-Risk Districts

Very high-risk districts share a **consistent pattern of elevated service gaps and limited coping capacity**

- **Common vulnerability drivers across very high-risk districts**
  - Severe **WASH gaps**, including inadequate latrine and shower access and quantity shortfalls
  - **Market access constraints** and food insecurity affecting household coping strategies
  - **Weak site-level preparedness**, including limited fire safety measures and DEWS coverage

Main Vulnerability Indicator Scores by District (Very High Risk Only)



Values represent normalized scores (0–1).

Key Findings- Geographic Patterns of Risk

Northern highlands and conflict-affected corridors (e.g. Al Jawf, Marib, Dhamar, Amran) consistently show **higher overall risk**, driven by the convergence of elevated hazards, high exposure, and structural vulnerability.

Coastal and low-lying areas (e.g. parts of Taiz and Al Hodeidah) are characterized by **higher flood and windstorm risk**, with exposure amplified where IDP sites are located near wadis and flood-prone areas.

Conflict frontlines maintain a **high risk regardless of natural hazard intensity**, as anthropogenic hazards significantly elevate exposure and constrain coping capacity.

Drought-prone governorates exhibit slow-onset risk patterns, where food insecurity and stress compound vulnerability over time

Urban and coastal governorates such as Aden and parts of Hadramawt generally show **lower overall risk**, primarily due to lower exposure and relatively stronger service access, though localized pockets of vulnerability persist.

Key Findings- Governorate Spotlight: Al Jawf

High concentration of Very High–risk districts

Risk pattern overview

- **Half of Al Jawf's districts (6/12) are classified as Very High risk,** with an additional **3 districts at High risk**, indicating a **governorate-wide concentration of severe risk** rather than isolated hotspots.
- Risk scores range from **0.47 to 0.67**, with the highest levels observed in **Al Hazm, Khab wa Ash Shaf, Rajuzah and Barat Al Anan**.

•**Flood hazard is high across almost all districts** (many at **0.78**)
•**Conflict incidence is persistently high** (≈0.52–0.77).
•**Climate stressors stack**:
•Extreme heat and cold both score high (≈0.7),
•Drought is moderate to high in several districts.

•**Susceptibility is at 0.70**, indicating widespread baseline vulnerability.
Common high-scoring indicators include:

- **Severe WASH gaps** (latrine & shower access ≈0.9),
- **Food insecurity and no income** (≈0.75–0.9),
- **Households without shelter** (often ≥0.75),
- **Dangerous structures present** (often = 1).

•**Lack of coping capacity ranges from 0.5 to 0.8**,
Gaps include:
•Weak market availability,
•Limited fire safety,
•Partial DEWS coverage,
•Poor health facility accessibility.

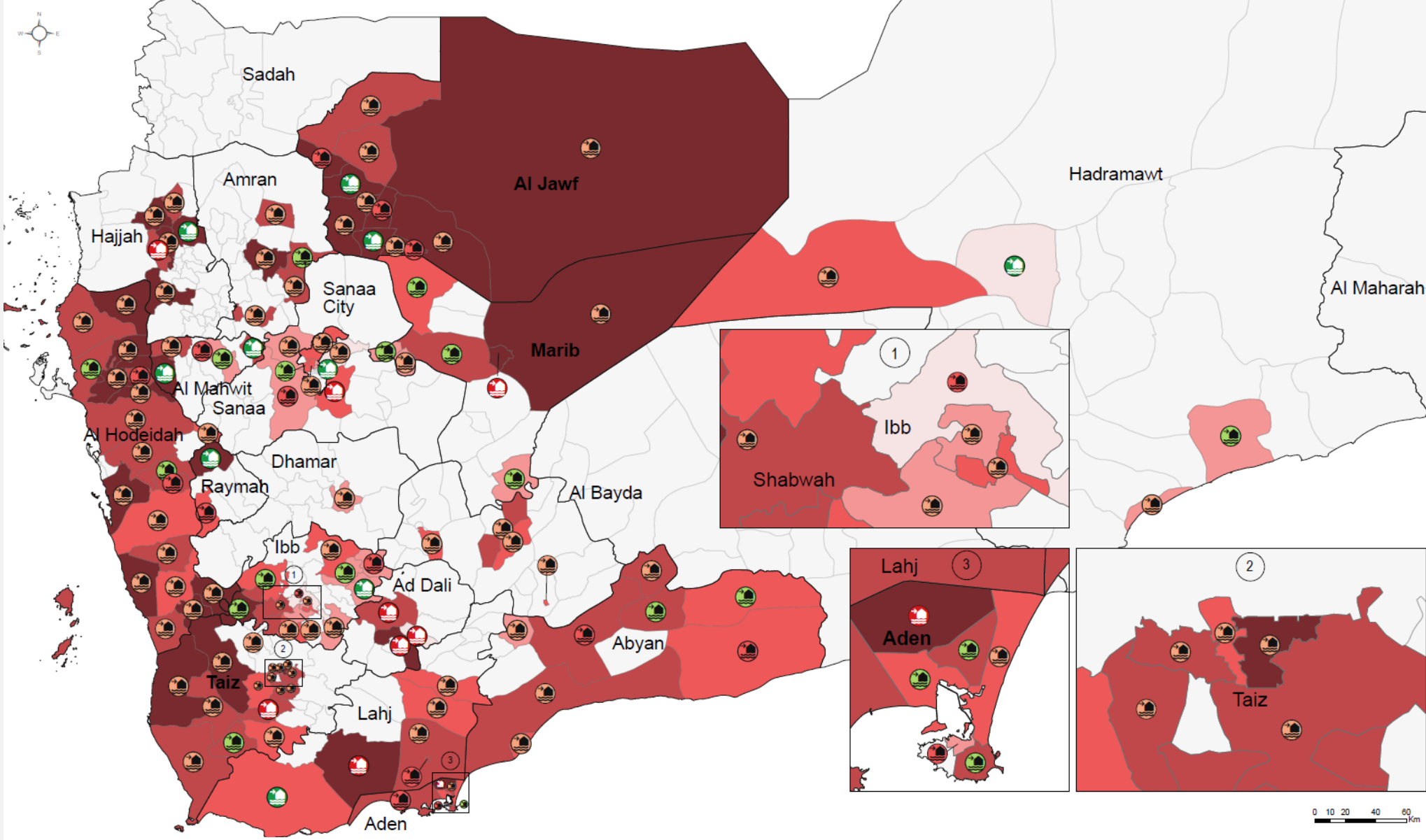
District	Natural	Anthropogenic	Hazard Index	Exposure Index	Susceptibility	Lack of Coping Capacity	Vulnerability Index	Risk Index	Risk Class
Al Hazm	0.6	0.8	0.7	0.7	0.7	0.5	0.6	0.67	Very High
Khab wa Ash Shaf	0.6	0.8	0.7	0.5	0.7	0.6	0.7	0.62	Very High
Barat Al Anan	0.7	0.6	0.6	0.5	0.7	0.8	0.8	0.62	Very High
Rajuzah	0.6	0.5	0.6	0.6	0.7	0.6	0.7	0.62	Very High
Al Ghayl	0.7	0.5	0.6	0.6	0.7	0.5	0.6	0.60	Very High
Al Matammah	0.6	0.6	0.6	0.5	0.7	0.6	0.7	0.58	Very High
Kharab Al Marashi	0.6	0.6	0.6	0.4	0.7	0.7	0.7	0.57	High
Az Zahir - Al Jawf	0.6	0.6	0.6	0.4	0.7	0.6	0.7	0.55	High
Al Mutun	0.5	0.7	0.6	0.4	0.7	0.5	0.6	0.53	High
Al Khalaq	0.5	0.5	0.5	0.3	0.7	0.5	0.6	0.47	Medium
Al Maslub	0.4	0.6	0.4	0.4	0.7	0.6	0.7	0.48	Medium
Al Humaydat	0.3	0.6	0.4	0.3	0.7	0.7	0.7	0.47	Medium

Main Risk Drivers

Flood Risk and Exposure in Relation to Food Insecurity

Flood and flash flood hazards emerge as one of the most consistently high-scoring hazards across assessed districts. This widespread exposure, combined with displacement patterns, makes floods a key driver of multi-hazard risk

- Flood exposure and food insecurity co-locate in several districts, producing higher composite risk scores where IDPs are exposed
- **High Flood + High Food insecurity: 24 districts**
- Concentration by governorate:
- **Al Hodeidah (8)**, **Al Jawf (4)**, **Hajjah (3)**, **Taiz (3)**, **Marib (2)**, plus **Aden/Lahj/Amran/Ad Dali (1 each)**.
- The **top compound district** by average and indicator is: Marib City: Flood 1.00, Food 0.88.



Administrative boundaries
- Governorates boundaries
- Districts boundaries

Acute Food Insecurity Index / Classes*
- Very Low / 0.125 - 0.250
- Low / 0.251 - 0.375
- Medium / 0.376 - 0.500
- High / 0.501 - 0.625
- Very High / 0.626 - 0.87
- Data not available

Flood Exposure Index / Classes*
- Very Low / 0
- Low / 0 - 0.333
- Medium / 0.334 - 0.555
- High / 0.556 - 0.777
- Very High / 0.778 - 1

District-level overlap combines population flood exposure with acute food insecurity (share of the population in IPC Phase 3+). Both indicators were normalized to a 0–1 scale, where higher values indicate districts with higher flood exposure and a higher proportion of people facing acute food insecurity.

Data sources: A combination of secondary data and structured consultation conducted by the CCCM Cluster and partners (18–30 November 2025). Secondary data: Flood Hazard Risk Analysis; IPC (Integrated Food Security Classification); CCCM IDP Sites Master List.

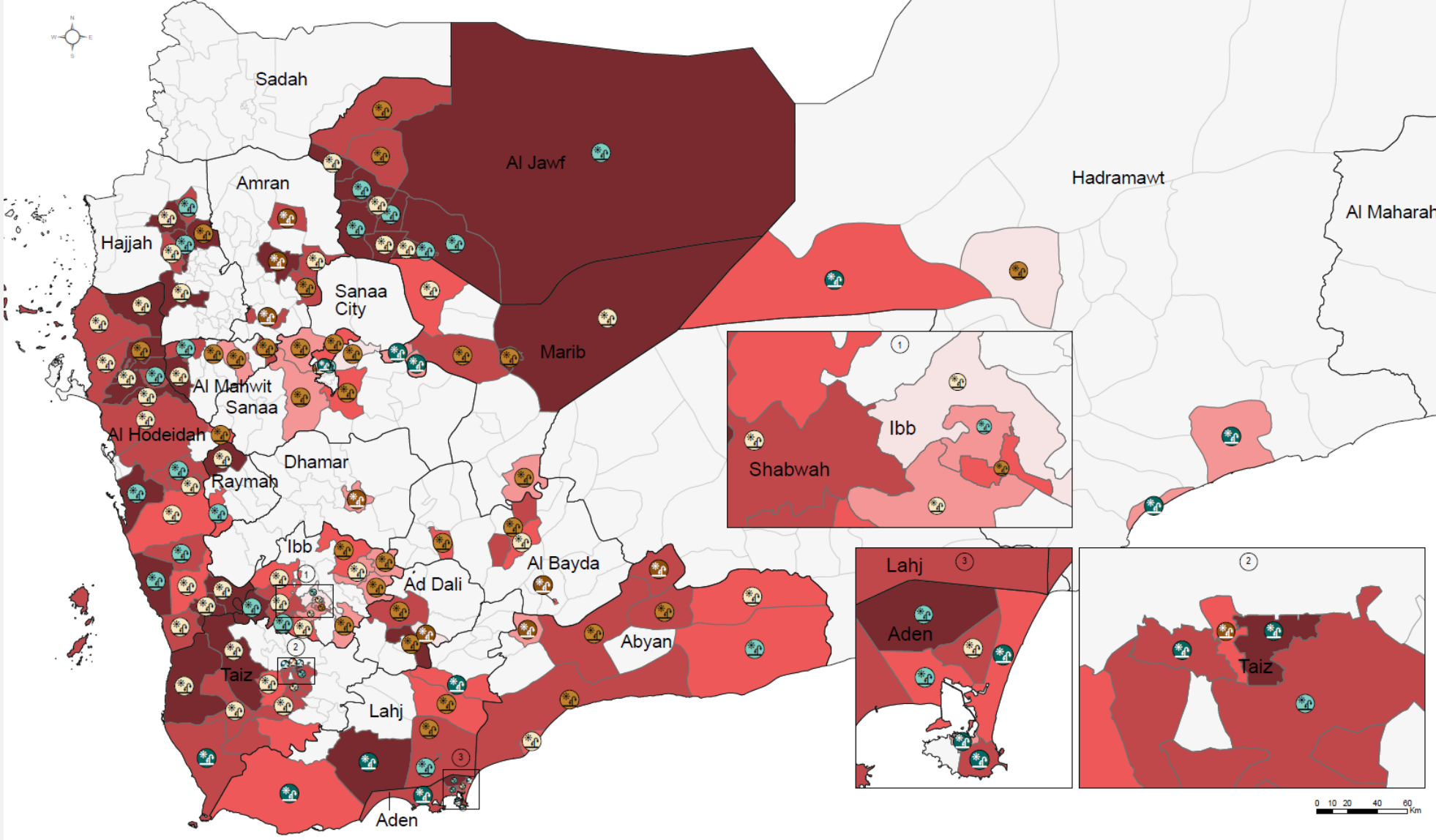
* Legend classes are relative (Jenks natural breaks) on a 0–1 normalized scale for this snapshot; they are not absolute thresholds and not comparable over time.

Drought Severity and Food Insecurity

Drought sensitivity (NDVI-based proxy) alongside acute food insecurity (% of population in IPC 3+)

Drought emerges as a key slow-onset hazard affecting a subset of districts, particularly inland and highland areas. Mapping drought alongside food insecurity helps explain sustained vulnerability patterns that are not driven by acute hazards alone.

- Drought severity is concentrated in **inland and highland districts**, including parts of Sana'a, Amran, Dhamar, Marib, and Al Bayda.
- In these areas, drought acts as a slow-onset stressor that can be expected to contribute to compound vulnerability over time, particularly where food insecurity is already elevated.
- Drought-driven risk is most critical where **high vulnerability and limited coping capacity** coincide, even in the absence of acute shocks.
- Some districts show **high food insecurity despite low drought** (e.g., **Al Jawf, Aden**), suggesting **non-climatic drivers** are dominant (conflict, access constraints, markets, displacement)



Administrative boundaries
- Governorates boundaries
- Districts boundaries

Acute Food Insecurity Index / Classes*
- Very Low / 0.125 - 0.250
- Low / 0.251 - 0.375
- Medium / 0.376 - 0.500
- High / 0.501 - 0.625
- Very High / 0.626 - 0.870
- Data not available

Drought Severity Index / Classes*
- Very Low / 0
- Low / 0.01 - 0.433
- Medium / 0.440 - 0.622
- High / 0.623 - 0.844
- Very High / 0.845 -1

* Legend classes are relative (Jenks natural breaks) on a 0–1 normalized scale for this snapshot; they are not absolute thresholds and not comparable over time.

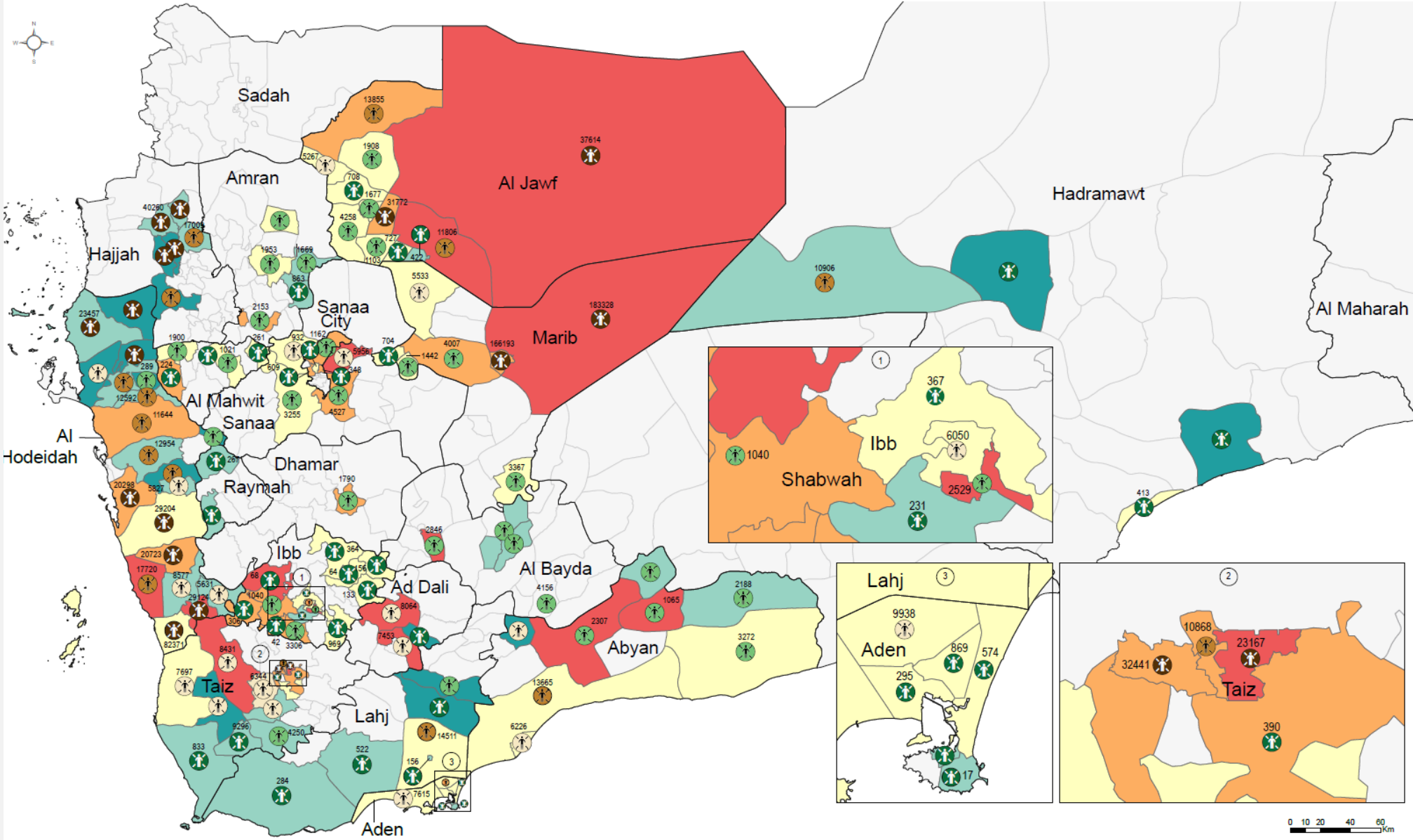
District-level overlap combines drought sensitivity (NDVI anomaly–based proxy) with acute food insecurity (share of the population in IPC Phase 3+). Both indicators were normalized to a 0–1 scale, where higher values indicate districts with greater drought sensitivity and a higher proportion of people facing acute food insecurity

Data sources: A combination of secondary data and structured consultation conducted by the CCCM Cluster and partners (18–30 November 2025). Secondary data: IPC (Integrated Food Security Classification); CCCM IDP Sites Master List; Middle East Anticipatory Climate Action Model (MEACAM), using NDVI-based drought sensitivity to low rainfall

Conflict Intensity and Affected Populations

Conflict incidents emerge as a key driver of very high risk in several districts, particularly where insecurity coincides with large displaced populations. Mapping conflict alongside affected populations helps explain why some districts remain high-risk regardless of natural hazard exposure.

- Conflict intensity is highly concentrated in specific districts, particularly along **active frontlines and displacement corridors**.
- Districts with the highest conflict scores frequently coincide with **large displaced populations**, significantly amplifying exposure and overall risk.
- In these areas, **conflict intensity is associated with higher composite risk scores even where natural hazard scores are moderate.**



Administrative boundaries
- Governorates boundaries
- Districts boundaries

Conflict Intensity Index / Classes*
- Very Low / 0 - 0.340
- Low / 0.341 - 0.500
- Medium / 0.501 - 0.620
- High / 0.621 - 0.720
- Very High / 0.720 - 1
- Data not available

Number of affected population (IDPs)
- 17 - 1000
- 1001 - 5000
- 5001- 10000
- 10001 - 20000
- 20000 - 190000

District-level overlap combines conflict intensity with the affected population (IDPs). Conflict hazard intensity is a district-level composite based on ACLED events in the last 24 months (political violence, civilian targeting, and demonstration events). Each event is scored (1 per event, +1 if fatalities >0, +1 if targeting civilians), summed by district. Both indicators were normalized to a 0–1 scale (higher values indicate districts with both higher conflict intensity and larger affected populations).
Data sources: A combination of secondary data and structured consultations conducted by the CCCM Cluster and partners (18–30 November 2025). Secondary data: ACLED district-level event data (political violence, civilian targeting, and demonstrations, including associated fatalities; 2015–Aug 2025); CCCM IDP Sites Master List.

Total number of IDPs is only shown on the map for districts having a conflict intensity score greater than 0.4.
* Legend classes are relative (Jenks natural breaks) on a 0–1 normalized scale for this snapshot; they are not absolute thresholds and not comparable over time.

How Floods, Conflict, and Drought Combine to Drive Risk

Multi-hazard risk in Yemen is driven not by a single dominant hazard, but by the **interaction of acute shocks, conflict-related pressures, and slow-onset stresses**, amplified by displacement and limited coping capacity.

- **Floods** represent a **widespread, acute hazard**, affecting a large number of districts; higher flood risk scores are often observed where IDP sites are located in flood-prone areas.
- **Conflict** acts as a **risk amplifier**, sustaining high exposure and constraining coping capacity, even in districts where natural hazards are moderate.
- **Drought** is a **slow-onset stressor**; in this analysis it is mapped as an underlying pressure that can compound vulnerability, especially in inland and highland districts.
- Very High/High risk classifications most often appear in districts where multiple indicator domains are simultaneously high **(hazard + exposure + vulnerability),** rather than where only one hazard indicator is high.

Reducing risk requires **multi-sectoral approaches** that address exposure and vulnerability alongside hazard preparedness, rather than hazard-specific interventions alone.

Key Takeaways

Key Takeaways

•**Risk in Yemen is compound and multi-hazard.** Around **one-third of districts (~35%)** fall into **High or Very High risk**, associated with floods, conflict, and drought rather than one single hazard. requiring **multi-sectoral responses** rather than hazard-specific interventions.

•Reducing risk in Very High and High districts requires addressing **exposure and vulnerability**, not hazards alone.

•**Floods are the most widespread hazard** and are high-impact where high IDP concentrations overlap with flood-prone areas.

•**Conflict acts as a persistent risk amplifier**, sustaining high exposure and limiting coping capacity even in districts with moderate natural hazard levels.

•**Drought is a critical slow-onset stressor**, compounding food insecurity and vulnerability, particularly in inland and highland districts.

•**Exposure is the key bridge between hazard and impact**, explaining why districts with similar hazard levels experience very different risk outcomes.

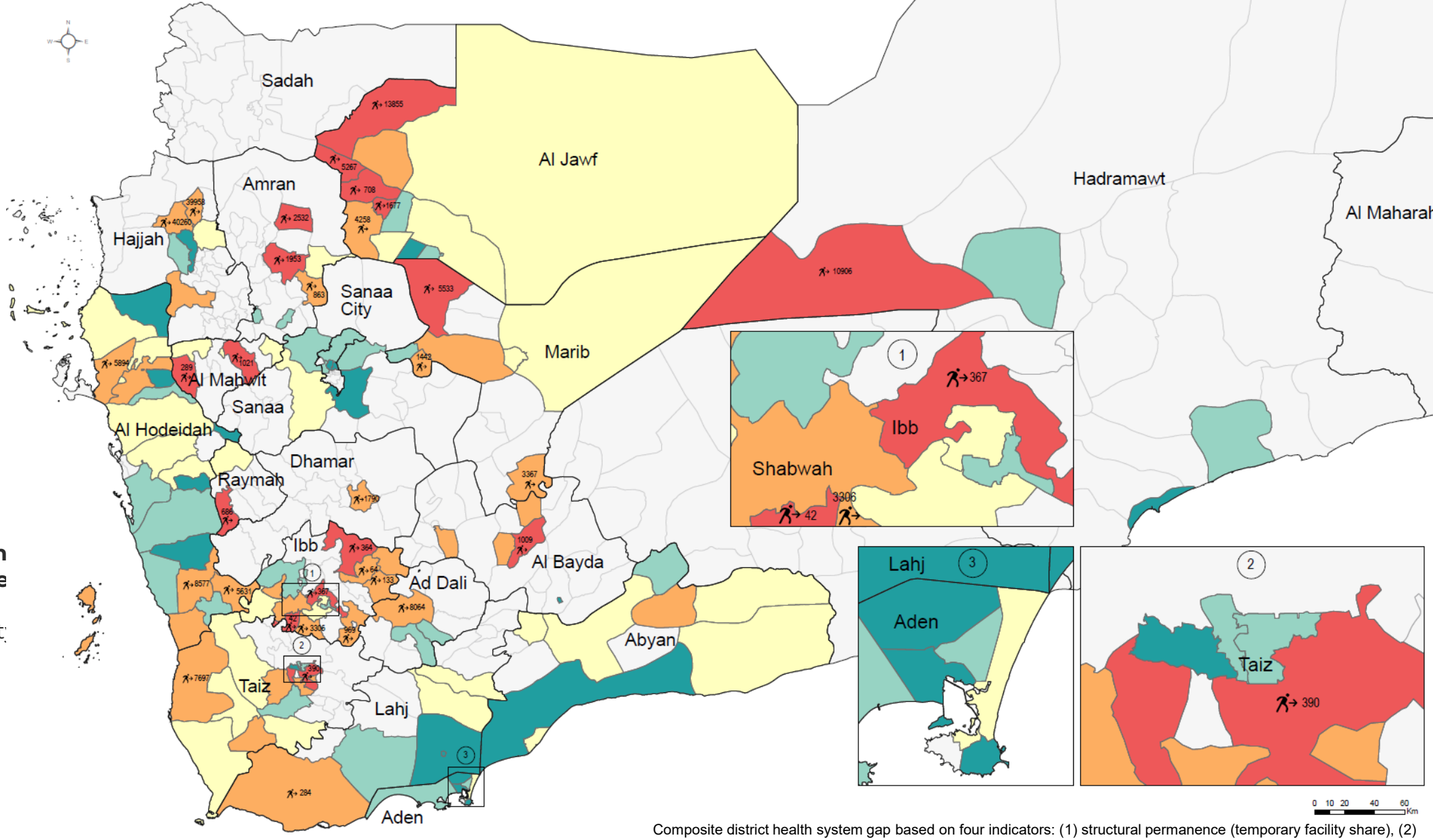
•**Vulnerability is driven primarily by service and infrastructure gaps**, especially in WASH, shelter conditions, market access, and early warning coverage.

•Results highlight priority gaps in WASH, shelter conditions, market access, communication access/coverage, and early warning/DEWS coverage..

•Most districts fall into the Medium and High categories, representing the bulk of Yemen’s displacement-affected areas.

Annex 1: Health System Capacity and Early Warning Coverage

Districts with **high hazard exposure an limited health syste functionality** face heightened mortalit and morbidity risks during shocks, particularly where DEWS coverage is weak.



Administrative boundaries
- Governorates boundaries
- Districts boundaries

Health System Gap Index (Composite Score*)
- Very Low / 0 - 0.126
- Low / 0.127 - 0.257
- Medium / 0.258 - 0.354
- High / 0.355 - 0.469
- Very High / 0.470 0 - 0.739
- Data not available

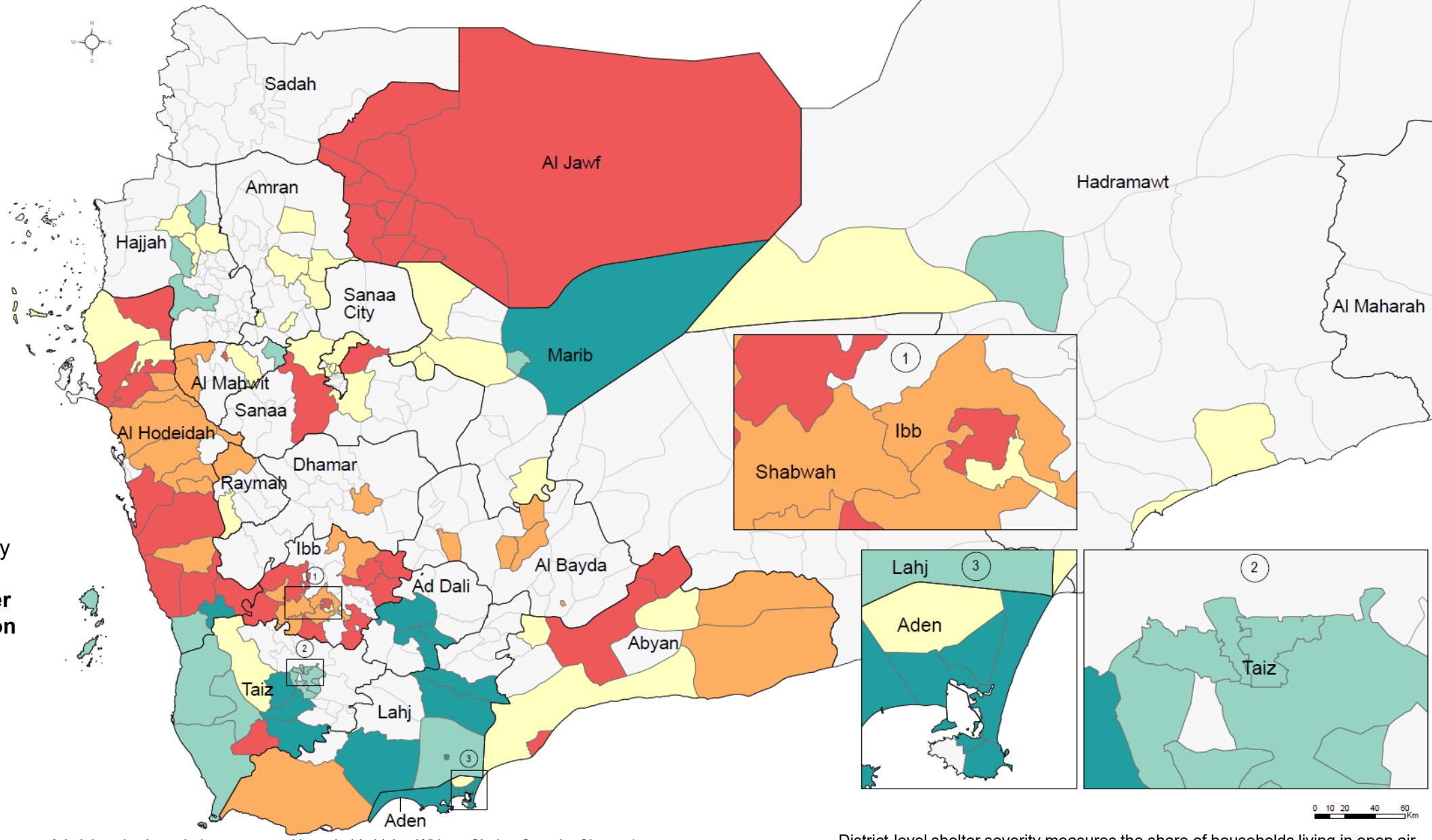
Total number of IDPS is only shown on the map for districts having a Health gap score greater than 0.4.
*Legend classes are relative (Jenks natural breaks) on a 0–1 normalized scale for this snapshot; they are not absolute thresholds and not comparable over time.

Composite district health system gap based on four indicators: (1) structural permanence (temporary facility share), (2) facility functionality, (3) patient accessibility, and (4) DEWS coverage. Each indicator was converted to a 0–1 gap scale (higher = worse) by normalizing where needed and inverting indicators where higher values mean better conditions (e.g., DEWS coverage). The composite score is the unweighted average of the four gap components. Final scores were grouped into five classes from very low to very high risk using natural breaks.

Data sources: A combination of secondary data and structured consultations conducted by the CCCM Cluster and partners (18–30 November 2025). Secondary data: CCCM IDP Sites Master List; HeRAMS (Health Resources Availability Mapping System).

Annex 2: Households Without Shelter (Open Air)

Included as a proxy for shelter deprivation and reduced coping capacity among IDPs, which **is associated with higher vulnerability/protection concerns**.



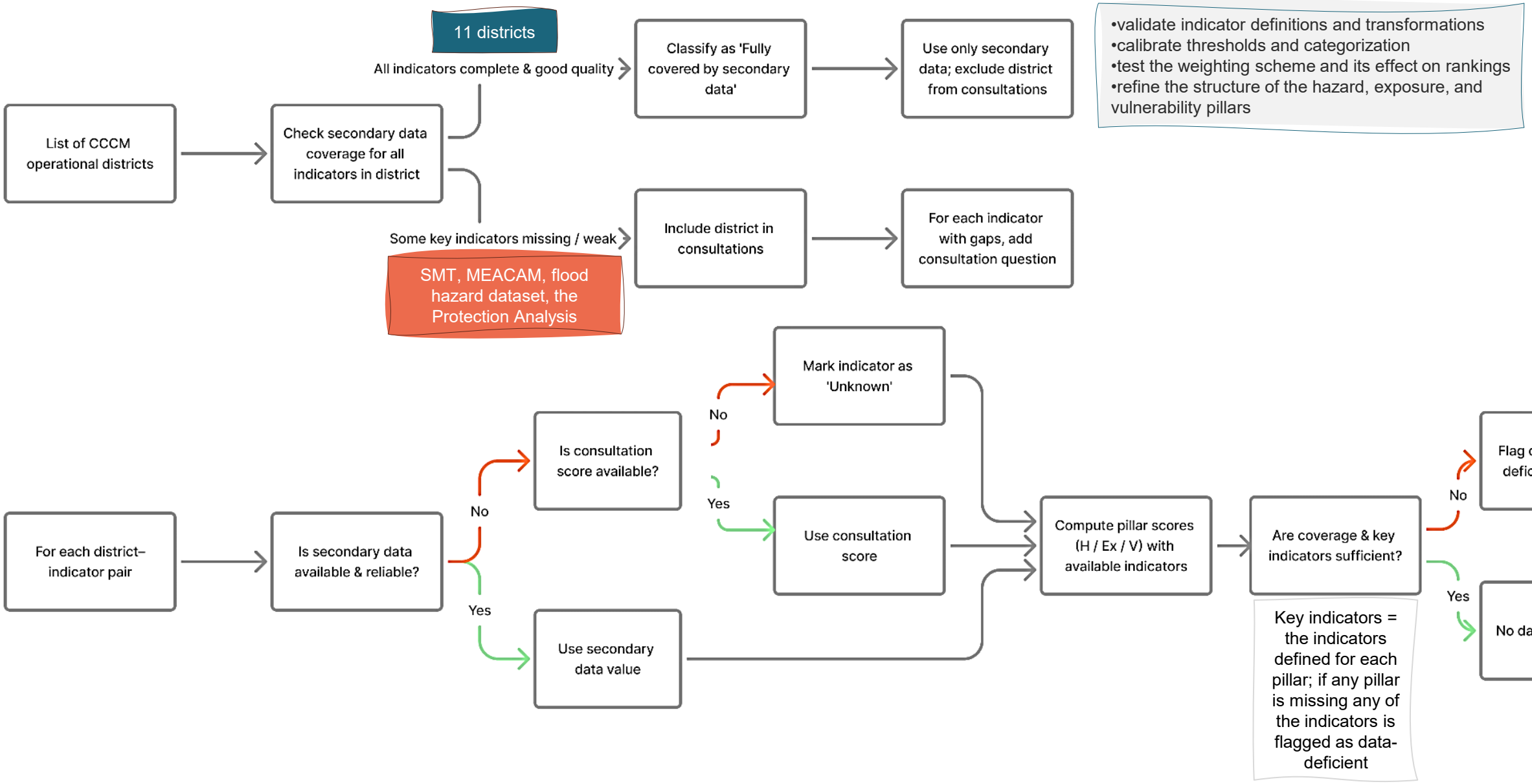
Administrative boundaries
- Governorates boundaries
- Districts boundaries

Households Living Without Shelter Severity Classes*
- Very Low / 0 - 0.022
- Low / 0.023 - 0.288
- Medium / 0.289 - 0.555
- High / 0.556 - 0.777
- Very High / 0.778 - 1
- Data not available

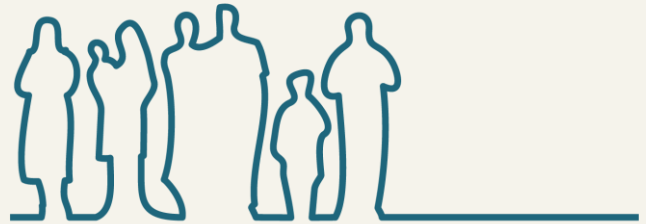
* Legend classes are relative (Jenks natural breaks) on a 0–1 normalized scale for this snapshot; they are not absolute thresholds and not comparable over time.

District-level shelter severity measures the share of households living in open air (no shelter). Household counts were aggregated to the district level and expressed as a proportion of total households to map the concentration of shelter deprivation.
Data sources: A combination of secondary data and structured consultations conducted by the CCCM Cluster and partners (18–30 November 2025).
Secondary data: Site Monitoring Tool (SMT); CCCM IDP Sites Master List.

Annex 3: Decision rules for consultations and data sources



Thank you!



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