Methodological Note: 2021 Shelter Severity Score & People in Need

Triple Severity Score Analysis

For the **2021 Yemen Humanitarian Needs Overview (HNO)**, REACH supported the Shelter Cluster with updating its Severity Score and People in Need (PIN) calculations by looking at three distinct lenses. This methodological note explains how the **Shelter Triple Severity Score Calculations**, highlighting Shelter and NFI needs per district in Yemen, were calculated. This analysis is an extended version of the *2020 Shelter Severity Score Calculations*, conducted by REACH on behalf of the Yemen Shelter Cluster in May 2020.

Scope

For this extended analysis, REACH calculated the **Overall Shelter Severity Scores** per district. In addition, different indicators were emphasised for a more varied analysis by creating **three different lenses**, including

- **Lens 1: Districts impacted by violence**
- **Lens 2: Climate & natural disasters** (split up in three sub-lenses: summer, winter, flood susceptibility)
- **Lens 3: Long-term assistance**

Sources

In order to allow for a minimum quality of data to calculate the different severity scores, only assessments conducted by non-governmental organisations (NGOs) or United Nations (UN) agencies within a recent timeframe (2018-2020) and wider geographic scope[1] were reviewed. In total, REACH reviewed the following ten assessments for the calculation of severity scores:

- **REACH CCCM Site Reporting Analysis 2020**
- **REACH Flood Susceptibility Calculations 2020**
- **REACH Weatherization Calculations 2019**
- **UNHCR INAT/PMT Analysis (January – August 2020)**
- **Civilian Impact Monitoring Project (CIMP) Infrastructure Damage Data (January 2018 – June 2020)**
- **OCHA Population Estimates 2020**
- **CCCM Master List for IDP Sites (July 2020)**
- **Shelter Cluster Severity Score Calculations 2019**
- **Shelter Cluster Refugee & IDP data 2018-2019**
- **OCHA Dataset on Districts impacted by Violence (August 2020)**

In addition, the Shelter Cluster organised expert discussions to gather information for two indicators (see Table 1) for which no country-wide data was available at the time of this analysis.

---

[1] A wider geographic scope refers to assessments that aim to collect information on a nation-wide basis with the understanding that certain areas in Yemen are difficult to assess and information gaps may remain.

Limitations

The Shelter Severity Scores should be considered as **indicative** estimates. Calculations are not linked to a single statistically representative survey, but based on the above assessments that include information gaps. While the Shelter Cluster reviewed the calculations to assess their accuracy in representing the reality on the ground, these calculations should be interpreted with caution based on to the overall lack of information in the Yemeni context.

Phase 1: Determination of Severity Scores at District level

The findings of this review were weighted and aggregated per district according to the following steps:

- **For each district, each indicator was calculated based on available secondary data.**
    - **In case information for certain indicators was missing, the following options were implemented in order of reference:**
        - **Option 1:** Calculating the average of the closest three districts based on their characteristic (i.e. rural/urban)
        - **Option 2**: Leaving figures blank, in case the above could not provide reliable/applicable results
- **Following, each indicator was assigned a severity score based on a 5-point severity scale (see Table 1).[2]**
- **Total severity scores per district were calculated by aggregating all indicators per district for each of the three lenses.**
    - All indicators were aggregated based on their unique weight.
    - In case information for certain indicators was missing, the remaining indicators were inflated proportionally. In addition, based on the aggregated weight of available indicators, 2020 Shelter Severity Scores were merged with 2019 Shelter Severity Scores to bolster the analysis for districts with missing information. This step involved the below weights:

Aggregated weight of 2020 Severity Score Indicators	Weight given to 2019 Severity Scores
>=50%	50%
>=60%	40%
>=70%	30%
>=80%	20%
>=90%	10%

Example: District YE0000 has a 2020 severity score of 1.7, calculated with seven available indicators (having an aggregated weight of 0.61%). The 2019 Shelter Severity Score for district YE0000 was 5.

Adjusted 2020 severity score = (1.7*0.6) + (5*0.4) = **3.02** = **3**

---

[2] For the 2021 HNO/HRP process Yemen is implementing the Joint Intersectoral Analysis Framework (JIAF), which is based on a 5-point severity scale (1 None/Minimal, 2 Stress, 3, Severe, 4 Extreme, 5 Catastrophic). For its 2021 Shelter Severity score analysis, the Shelter Cluster aligned its own 7-point severity scale with the JIAF's 5-point severity scale.

- **Total severity scores per lens were only calculated for <u>certain</u> districts, as described below:**
  - **Lens 1 (Districts impacted by violence):** Only districts with a severity score of (>=2) for Indicator 12. % of district area impacted by violence
  - **Lens 2 (Climate & natural hazards):** Only districts with a severity score of (>=2) for either of the following three indicators (2. % of populated areas highly susceptible to floods, 3a./3b. % of populated areas susceptible to extreme summer/winter temperatures)
    - **Lens 2.1 (summer)**: Only districts with a severity score of (>=2) for Indicator 3a. % of populated areas susceptible to extreme summer temperatures
    - **Lens 2.2 (winter):** Only districts with a severity score of (>=2) for Indicator 3b. % of populated areas susceptible to extreme winter temperatures
    - **Lens 2.3 (flood susceptibility):** Only districts with a severity score of (>=2) for Indicator 2. % of populated areas highly susceptible to floods
  - **Lens 3 (Long-term solutions):** Only districts with a severity score of (>=3) for Indicator 13. District potential for implementation of long-term assistance projects

Review of proposed 2020 Shelter Triple Severity Scores

To allow for inclusion of expert judgment, the calculated Severity Scores were submitted to the Shelter Cluster for their review to determine, whether suggested severity scores reflect the current situation on the ground.

Table 1: Severity Categorisation (5-point severity scale)

Nr	Indicators	1 No/minimal	2 Stress	3 Severe	4 Extreme	5 Catastrophic	POTENTIAL SOURCES	Assessed population groups
1	**Proportion of IDPs/ returnees over Total Population**	IDPs and/or returnees constitute (>0%, <4%) of population	IDPs and/or returnees constitute (>=4%, <8%) of population	IDPs and/or returnees constitute (>=8, <10%) of population	IDPs and/or returnees constitute (>=10, <16%) of population	IDPs and/or returnees constitute (>=16%) of population	*OCHA population estimates + SC refugee/IDP data*	IDP/returnee/Host population
2	**Percentage of populated areas highly susceptible to floods**[3]	(>=0%, <10%) of populated areas within the district highly susceptible to floods	(>=10%, <20%) of populated areas within the district highly susceptible to floods	(>=20%, <40%) of populated areas within the district highly susceptible to floods	(>=40%, <75%) of populated areas within the district highly susceptible to floods	(>=75%) of populated areas within the district highly susceptible to floods	*REACH Flood susceptibility calculations*	IDP/returnee/Host population
3a	**Presence of extreme summer temperatures** (% of summer days in populated areas equal or above 43°C)	(>0%, <10%) of populated areas within the district susceptible to extreme summer temperatures	(>=10%, <20%) of populated areas within the district susceptible to extreme summer temperatures	(>=20%, <40%) of populated areas within the district susceptible to extreme summer temperatures	(>=40%, <75%) of populated areas within the district susceptible to extreme summer temperatures	(>=75%) of populated areas within the district susceptible to extreme summer temperatures	*REACH weatherization calculation*	IDP/returnee/Host population
3b	**Presence of extreme winter temperatures** (% of winter nights in populated areas equal or below 10°C)	(>0%, <10%) of populated areas within the district susceptible to extreme winter temperatures	(>=10%, <20%) of populated areas within the district susceptible to extreme winter temperatures	(>=20, <40%) of populated areas within the district susceptible to extreme winter temperatures	(>=40, <75%) of populated areas within the district susceptible to extreme winter temperatures	(>=75%) of populated areas within the district susceptible to extreme winter temperatures	*REACH weatherization calculations*	IDP/returnee/Host population
4	**Percentage of IDP households in IDP sites reporting access to general markets (goods)**	(>=90%, 100%) IDP households report access to markets in site or in close proximity	(>=75%, <90%) of IDP households report access to markets in site or in close proximity	(>=50%, <75%) of IDP households report access to markets in site or in close proximity	(>=25%, <50%) of IDP households report access to markets in site or in close proximity	(>=0%, <25%) of IDP households report access to markets in site or in close proximity	*REACH CCCM Site Reporting*	IDP
5	**Percentage of households whose primary shelter type is instable or non-existent**[4]	(>0%, <10%) of households whose primary shelter type is instable or non-existent	(>=10%, <20%) of households whose primary shelter type is instable or non-existent	(>=20%, <30%) of households whose primary shelter type is instable or non-existent	(>=30, <50%) of households whose primary shelter type is instable or non-existent	(>=50%) of households whose primary shelter type is instable or non-existent	*UNHCR INAT/PMT*	IDP/returnee/Host population

---

[3] The flood susceptibility scale was informed by analysing Yemen's hydrological, physical and topographical parameters. Calculations were based on a 1-7 susceptibility scale.

[4] Instable or non-existent shelter refers to collective centre, makeshift, emergency, transitional shelter and unfinished building as well as persons being homeless.

6a	**Percentage of households impacted by armed violence[5]**	(>0%, <1%) civilian houses impacted by armed violence	(>=1%, <2%) civilian houses impacted by armed violence	(>=2%, <6%) civilian houses impacted by armed violence	(>=6%, <12%) civilian houses impacted by armed violence	(>=12%) civilian houses impacted by armed violence	*CIMP Dataset*	IDP/returnee/Host population
6b	**Percentage of civilian houses and private dwellings partially/ completely uninhabitable due to damage or destruction[6]**	(>0%, <4%) of buildings in the district partially/completely uninhabitable due to damage or destruction	(>=4%, <6%) of buildings in the district partially/completely uninhabitable due to damage or destruction	(>=6%, <8%) of buildings in the district partially/completely uninhabitable due to damage or destruction	(>=8, <20%) of buildings in the district partially/completely uninhabitable due to damage or destruction	(>=20%) of buildings in the district partially/completely uninhabitable due to damage or destruction	*Shelter Cluster Expert discussions*	IDP/returnee/host population
7	**Percentage of people living in IDP hosting sites relative to total district population**	Very few (>0%, <2%) households are living in IDP hosting sites	(>=2%, <4%) of households are living in IDP hosting sites	(>=4%, <6%) of households are living in IDP hosting sites	(>=6%, <10%) of households are living in IDP hosting sites	(>=10%) of households are living in IDP hosting sites	CCCM Master List for IDP Sites	IDP
8	**Percentage of IDP households in IDP sites who have basic services (Electricity, cooking fuel) in sites or close proximity**	Almost all (>=90%, 100%) IDP households have basic services available in site or in close proximity	(>=75%, <90%) of IDP households have basic services available in site or in close proximity	(>=50%, 75%) of IDP households have basic services available in site or in close proximity	(>=25%, <50%) of IDP households have basic services available in site or in close proximity	(>=0%, <25%) of IDP households have basic services available in site or in close proximity	*CCCM Site Reporting*	IDP
9	**Percentage of IDP households in IDP sites with access to adequate sectoral services in shelters/sites or close proximity[7]**	Almost all (>=90, <100%) IDP households have access to adequate sectoral services	(>=75%, <90%) of IDP households have access to adequate sectoral services	(>=50%, <75%) of IDP households have access to adequate sectoral services	(>=25%, <50%) of IDP households have access to adequate sectoral services	(>=0%, <25%) of IDP households have access to adequate sectoral services	*CCCM Site Reporting*	IDP
10	**Percentage of households facing eviction threats**	Very few (>=0%, <10%) households are facing eviction threats	(>=10%, <20%) of households are facing eviction threats	(>=20%, <40%) of households are facing eviction threats	(>=40%, <75%) of HH are facing eviction threats	(>=75%) of households are facing eviction threats	*UNHCR INAT/PMT*	IDP/returnee/Host population

---

[5] Figures were calculated using CIMP data (January 2018 – July 2020). Calculations were based on dividing the number of civilian houses reported to be impacted by armed violence by the number of households per district (based on OCHA 2020 population figures). It is assumed that one household lives in one house with an average household size of seven. The number of civilian houses impacted are cumulative figures, and may include houses that have been hit multiple times.

[6] Figures were based on expert discussions held at hub-level and led by Shelter Sub-Cluster Representatives. Experts included technical experts with strong technical knowledge and representatives of NGOs/UN agencies with strong presence in respective districts.

[7] Adequacy refers to at least 70% of population having access to functional essential services. Essential sectoral services include waste disposal, WASH, shelter, food, nutrition, protection, medical, NFI, cash assistance, livelihood, RRRM and education services.

11	**Percentage of households who can afford to pay rent regularly**	(>= 80%, <100%) of households can afford to pay rental accommodation	(>= 60, <80%) of households can afford to pay rental accommodation	(>=40, <60%) of households can afford to pay rental accommodation	(>=20, <40%) of households can afford to pay rental accommodation	(>=0%, <20%) of households can afford to pay rental accommodation	*UNHCR INAT/PMT*	IDP/returnee/Host population
12	**Percentage of district area impacted by violence**	(>0%, <10%) of district area (km2) within 50km of areas impacted by violence	(>=10%, <100%) of district area (km2) within 50km of areas impacted by violence	(>=30%, <=100%) of district area (km2) within 25km of areas impacted by violence	(>=30%, <=100%) of district area (km2) within 10 or 25km of areas impacted by violence	(>=30%, <=100%) of district area within 10km of areas impacted by violence	*OCHA data on districts impacted by violence*	Population impacted by violence

Triple-scale analysis

The following section explains in more detail what the different lenses aimed to measure, including 1) districts impacted by violence, 2) climate & natural disasters and 3) long-term assistance.

- **Districts impacted by violence**

    This lens aims to understand Shelter needs in those districts, which are currently impacted by violence and where emergency assistance may be necessary (i.e. NFIs, emergency shelter, etc.).

- **Climate & natural disasters**

    This lens aims to understand, the needs in those districts most heavily affected by the Yemeni climate and natural disasters, including extreme summer and winter temperatures as well as susceptibility to flooding. This lens highlights severity scores for the whole year, but also separately for summer/winter climate and flood susceptibility. The Shelter Cluster can thereby view the needs based on thematic/programmatic area.

    In addition, to this analysis, REACH developed a **historical cyclone map** highlighting severity scores per district on cyclone data. Such scores were based on the number of occurrences of cyclones per district from 1906 to 2018.

- **Long-term assistance**

    This lens aims to understand Shelter needs in those districts, where implementation of long-term assistance projects (i.e. rehabilitation of houses, structural/reconstruction repairs) is feasible within the next 12 months[8]. Below scale highlights how potential for implementation were measured.

Indicator	No/minor potential for implementation of long-term solutions	Some potential for implementation of long-term solutions		Good potential for implementation of long-term assistance		Potential source	Assessed population groups
	1	2	3	4	5		
	No/Minor potential	Moderate potential	Significant potential	Good potential	Very good potential		
District potential for implementation of long-term assistance	(>=0, <25%) of the district currently have the conditions in place for implementation of long-term assistance projects	(>=25, <50%) of the district currently have the conditions in place for implementation of long-term assistance projects	(=>50, <65%) of the district currently have the conditions in place for implementation of long-term assistance projects	(>=65, <80%) of the district currently have the conditions in place for implementation of long-term assistance projects	(>=80%) of the district currently have the conditions in place for implementation of long-term assistance projects	*Shelter Cluster Expert discussions*	IDP, returnee

---

[8] Feasible refers to districts that were marked with a significant, good or very good potential for implementation of long-term solutions (score of 3-5 in above 5-point scale).

Below table shows which set and weight of indicators were used to calculate the three different scales. The weighting of these indicators was originally provided by the Shelter Cluster. During the analysis, these weights were adapted in consultation with the Cluster to create a more coherent picture.

Indicators	TOTAL Severity Scores per District	Lens 1: Active conflict & Emergency response	Lens 2: Climate & natural disasters	Lens 2a: Summer	Lens 2b: Winter	Lens 2c: Flood suscep-tibility	Lens 3: Long-term solutions
1. % of IDPs/returnees over total population	*Severity score per indicator per district equals the maximum severity score from one of the three lenses.*	13%	3%	8%	6%	8%	18%
2. % of populated area with high flood susceptibility		2%	20%	0%	0%	25%	6%
3a. % of populated areas highly susceptible to extreme summer temperatures		2%	15.5%	25%	0%	0%	0%
3b. % of populated areas highly susceptible to extreme winter temperatures		2%	15.5%	0%	25%	0%	0%
4. % of IDP HHs in IDP sites reporting access to market in site or close proximity		5%	0%	0%	0%	0%	4%
5. % of HHs whose primary shelter type is instable or non-existent		13%	10%	22%	20%	22%	20%
6a. % of houses impacted by armed violence		5%	5%	6%	5%	6%	0%
6b. % of civilian houses and private dwelling partially/completely uninhabitable due to damage or destruction		13%	10%	22%	20%	22%	20%
7. % of people living in IDP hosting sites relative to total district population		10%	2%	8%	5%	8%	4%
8. % of IPD HHs in IDP sites who have basic services (fuel & electricity) in sites or close proximity		5%	10%	0%	10%	0%	8%
9. % of IDP HHs in IDP sites who have essential sectoral services in shelters/sites or close proximity		5%	2%	2%	2%	2%	4%
10. % of HHs facing eviction threats		2%	5%	5%	5%	5%	17%
11. % of HHs who report being able to pay rent regularly		9%	2%	2%	2%	2%	15%
12. % of district area impacted by violence		14%	0%	0%	0%	0%	-16%
13. % of district potential for implementation of long-term solutions		0%	0%	0%	0%	0%	0%
Type of population for identifying the PIN		Communities impacted by violence	IDPs, Host Community, Returnees	IDPs, Host Community, Returnees	IDPs, Host Community, Returnees	IDPs, Host Community, Returnees	IDPs, Returnees

Phase 2: Determination of PIN score

After determing the Severity Scores at district level per lens, the **PIN** was calculated at district and national level.

- **The Total PIN figure, is based on the sum of Acute PIN figure and Moderate PIN figure, which were calculated based on district Severity Scores.**
  - o The number of people in *acute* need is the sum of PIN, who live in districts classified with a Severity Score of 4 and 5. The number of people in *moderate* need is the sum of PIN, who live in districts classified with a Severity Score of 2 and 3.
  - o To generate <u>overall sector PIN figures</u>, the Shelter Cluster decided to aggregate the *maximum* moderate and acute PIN figures per lens.
- **It was assumed that even if a district has a severity score of six, not all (100%) people in this district are actually in need.** Thus, each value of the Overall Severity Scores was associated with a certain percentage of the population, classified as *in need*. For each lens a different set of percentage weight of population in *acute* or *moderate* need was assigned, since the Shelter Cluster understands that the population affected differs per lens. See below table for more details:

Severity	Lens 1	Lens 2 & 2.3 (floods)	Lens 2.1 (summer)	Lens 2.2 (winter)	Lens 3
5 % of population in *acute need*	0.86	0.36	0.12	0.18	0.72
4 % of population in *acute need*	0.78	0.28	0.08	0.14	0.68
3 % of population in *moderate need*	0.32	0.10	0.06	0.08	0.30
2 % of population in *moderate need*	0.20	0.04	0.02	0.04	0.18
1 No population in *need*	0	0	0	0	0

Type of Population

- Three different types of population were taken into account for calculation of PIN per district, namely
  - o Communities impacted by violence (population within 50km of areas impacted by violence; Lens 1)
  - o Host population (Lens 2)
  - o IDPs/Returnees (Lens 3)

> ***Example:*** District 0000 has a total estimated population of 100.000 impacted by violence and has been classified with a severity score of 4 for Lens 1.
>
> - **Calculation: 100.000 * 0.78 = 78.000 people in *acute* need**