Research Terms of Reference Secondary Desk Review on WASH Assessments in Yemen YEM1902c Yemen

May 2020

REACH Informing more effective humanitarian action

1. Executive Summary

Country of	Yemen						
intervention							
Type of Emergency		Natural disaster	Х	Con	flict		
Type of Crisis		Sudden onset		Slov	v onset	X Protracted	
Mandating Body/	Yeme	en WASH Cluster (YWC)					
Agency							
Project Code	YEM	1902c					
Overall Research							
Timeframe (from	15/11	/2019 to 31/05/2020					
research design to final							
outputs / M&E)							
Research Timeframe	1. Sta	art collect data: 23/11/2019			5. Preliminary pr	esentation: NA	
Add planned deadlines	2. Da	ta collected: 19/12/2019			6. Outputs sent f	or validation: 07/05/2020	
(for first cycle if more than	3. Da	ta analysed: 01/03/2020			7. Outputs publis	shed: 31/05/2020	
1)	4. Da	ta sent for validation: 02/03/	2020)	8. Final presenta	ition: NA	
Number of	Х	Single assessment (one cy	ycle)				
assessments							
		Multi assessment (more th	an o	ne cy	vcle)		
		Multi assessment (more th	ian o	ne cy	vcle)		
Humanitarian	Miles	Multi assessment (more th	ian o	ne cy	rcle) Deadline		
Humanitarian milestones	□ Miles X	Multi assessment (more th stone Donor plan/strategy	ian o	ne cy	Deadline 23/03/2020		
Humanitarian milestones Specify what will the	□ Miles X X	Multi assessment (more th stone Donor plan/strategy Inter-cluster plan/strategy	ian o	ne cy	Deadline 23/03/2020 Ongoing		
Humanitarian milestones Specify what will the assessment inform and when	□ Miles X X X X	Multi assessment (more th stone Donor plan/strategy Inter-cluster plan/strategy Cluster plan/strategy	ian o	ne cy	Deadline 23/03/2020 Ongoing Ongoing		
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Humanitarian milestones Specify what will the assessment inform and when e.g. The shelter cluster will use this data to draft its Revised Flash Appeal;	□ Miles X X X X X	Multi assessment (more the stone Donor plan/strategy Inter-cluster plan/strategy Cluster plan/strategy NGO platform plan/strategy Other (Specify):	y	ne cy	Deadline 23/03/2020 Ongoing Ongoing Ongoing // Dissemination		
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Humanitarian milestones Specify what will the assessment inform and when e.g. The shelter cluster will use this data to draft its Revised Flash Appeal; Audience Type & Dissemination Specify who will the assessment	Miles X X X X A Audie X Stra Y Pro	Multi assessment (more the stone Donor plan/strategy Inter-cluster plan/strategy Cluster plan/strategy NGO platform plan/strateg Other (Specify): ence type ategic	y		rcle) Deadline 23/03/2020 Ongoing Ongoing Ongoing // Dissemination X General Produconsortium; HCT p	ct Mailing (e.g. mail to NGO participants; Donors)	
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Detailed		Yes	Х	No	
dissemination plan					
required					
General Objective	The r	nain obiective of this Secondary De	sk I	Review (SDR) is to better understand the	
·····	Wate	r. Sanitation and Hygiene (WASH) r	elat	ed needs of people in Yemen, as well as	
	under	lying causes of these needs to fo	orm	an evidence base to inform appropriate	
	resno	nse planning and resource mobilisation	nn n		
Specific Objective(s)	The s	necific objectives of the SDR are:			
	1110 3				
	1	. To provide an understanding of th	e W	/ASH needs in Yemen;	
		a. Assign district level WAS	SH S	everity Scores;	
		 b. Estimate district level null 	mbe	er of people in Moderate Need;	
		c. Estimate district level nu	mbe	er of people in Acute Need;	
	2	. To provide an understanding of th	e m	ain causes of WASH needs in Yemen and	
		the factors driving those needs;			
	3	. To provide an understanding of pr	oteo	ction risks due to a lack of adequate	
		access to WASH facilities and ser	VICE	S;	
	4	. To identify gaps in data collection.	oro	are less reported upon:	
		a. To indicate which novem	orat	tes and districts are less reported upon	
		b. To indicate which govern	ora		
Research Questions	Main	research question: What are the V	NAS	SH-related needs of people in Yemen, the	
	sever	ity of those needs, and the factors dri	ving	those needs?1	
	Sub-i	research questions:			
	1	What % of households have acce	ss	to safe and adequate WASH services and	
	-	facilities?			
	2	. What are WASH-related behaviou	ırs a	and practices among affected populations?	
	3	What is the rate of Global Acute N	/aln	utrition (GAM) in districts if available?	
	4	What is the Acute Watery Diarrho	ea	(AWD)/cholera attack rate in districts? And	
		what are related trends?	Jou		
	5	What is the status of water and sa	anita	ation systems in Yemen? How is this status	
		influencing WASH needs?			
	6	. How are laws and policies influen	cina	WASH needs in Yemen?	
	7	. How is the climate in Yemen influe	enci	ng WASH needs?	
	8	. How is the economy in Yemen inf	luen	icing WASH needs?	
	9 How do WASH needs affect different population group (such as Internally				
	Displaced Persons (IDPs) refugees migrant returnees non-displaced women				
		men boys girls and people of dif	fere	ent age groups)?	
Geographic Coverage	Yeme	en (Nationwide)			
Secondary data	See /	Annex 4 for the list of reports included	d for	estimating the severity scores and people	
sources	in need.				
Population(s)	Х	IDPs in camp	Х	IDPs in informal sites	
Select all that apply	Х	IDPs in host communities		IDPs [Other, Specify]	
	Х	Refugees in camp	Х	Refugees in informal sites	
	Х	Refugees in host communities		Refugees [Other, Specify]	
	Х	Host communities		NGO Data Collection teams	

¹ The answer to this research question is based on secondary data collection, meaning that no primary data was collected for this study.

Data collection tool(s)	Х	Structured (Quantitative)		Х	Semi-structure	d (Qualitative)	
	Sam	oling method		D	Data collection method		
Structured data	🗆 Pu	rposive		□ Key informant interview (Target #):			
collection tool # 1		hability / Simple random			Group discussion (Target #):		
Select sampling and data	 Drobability / Stratified simple rendem 					iour (Torget #):	
collection method and		 Probability / Stratilied simple random Probability / Cluster sampling 				(Taiget #)	
specity larger # interviews					Individual intervie	ew (Target #):	
	□ Pro	bability / Stratified cluster samplir	ng		Direct observation	ns (Target #):	
	X See	condary Data Review		Х	Desk Review		
Structured data	X Pu	roosive		п	Key informant inte	erview (Target #):	
collection tool (s) # 2	□ Sn	owballing			Individual intervie	ww (Target #):	
Select sampling and data		har Shaaiful			Ecous group diss	$\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$	
collection method and		ner, specity]					
specity larger # interviews				Х	Online Survey (Ta	arget #):100	
Target level of	N/A			N/A			
precision if							
probability sampling	V	IN IDA OT					
Data management	Х	IMPACI			UNHCR		
platform(s)		[Other Specify]					
Expected output		[Other, Specify]	X Don	ort	#· 1	Drofilo #:	
Expected output				on	#. I		
type(3)		Presentation (Preliminary		sen	tation (Final)	X Factsheet # [,] 1	
		findings) #	 	0011			
		Interactive dashboard #:	□ Wel	oma	ap #:	□ Map #:	
		Other, Specify] #:				1	
Access	Х	Public (available on REACH	resourd	ce c	entre and other	humanitarian platforms)	
		Restricted (bilateral dissen	ninatior	1 0	nly upon agree	ed dissemination list, no	
		publication on REACH or oth	er platf	orm	ns)		
Visibility Specify which	REA	CH, Yemen WASH Cluster, A	CAPS				
logos should be on	Donc	or: N/A					
outputs	Coor	dination Framework: YWC					
	Partr	ners: ACAPS, YWC partner org	ganizati	ions	;		

2. Rationale

2.1. Rationale

Yemen has the lowest per capita water availability in the world.² The country relies on the Arabian Aquifer System, which is the most stressed worldwide, meaning that the aquifer is not being replenished adequately and that water will become more scarce in the future.³ In addition, the economic crisis caused spikes in fuel prices, which further decreases access to water.⁴ Decreased access to water is related to an increase in morbidity and mortality.⁵ Water scarcity may also increase protection concerns; for example, longer commutes to fetch water may expose women and children, who are traditionally responsible

² Nicole Glass, 'The Water Crisis in Yemen: Causes, Consequences and Solutions', *Global Majority E-Journal*, 2010, 351–58 https://doi.org/10.5004/dwt.2019.24592. ³ Alexandra S. Richey and others, 'Quantifying Renewable Groundwater Stress with GRACE', *Water Resources Research*, 51.7 (2015), 5217–37

^{*} Alexandra S. Richey and others, Quantin https://doi.org/10.1002/2015WR017349>.

⁴ Margaret Suter, 'An Update on Yemen's Water Crisis and the Weaponization of Water', Atlantic Council, 2018 [accessed 7 April 2020].">https://www.atlanticcouncil.org/blogs/menasource/an-update-on-yemen-s-water-crisis-and-the-weaponization-of-water/>[accessed 7 April 2020].

⁵ Stephen S. Lim and others, 'A Comparative Risk Assessment of Burden of Disease and Injury Attributable to 67 Risk Factors and Risk Factor Clusters in 21 Regions, 1990-2010: A Systematic Analysis for the Global Burden of Disease Study 2010', *The Lancet*, 380.9859 (2012), 2224–60 https://doi.org/10.1016/S0140-6736(12)61766-8.

for fetching water, to increased hazards.⁶ The economic situation also lead to poorer sanitation systems and decreased access to hygiene (soap), which was not accessible for 75% of the population in 2018 as it was reported to be too expensive.⁷ In addition, population health is being put further at risk as Yemen's waste management system has deteriorated due to postponed salary payments and a lack of fuel.^{8,9} Poorly managed wastewater and solid waste can contaminate surrounding soil and groundwater and thereby catalyse the spread of water borne diseases such as cholera or typhoid.

The 2019 Yemen Humanitarian Needs Overview estimated that over two thirds of Yemenis were in need of WASH-related assistance, with 12.3 million of those in acute need of support.¹⁰ Humanitarian actors in Yemen are continuously working to address the urgent WASH needs of vulnerable among the population. For better programme planning and resource mobilization, it is crucial to understand what WASH needs exist and where these needs are most prevalent. Given both the lack of country-wide, governorate, or district-level information on WASH needs in Yemen, and the severely compromised humanitarian access¹¹, the Yemen WASH Cluster (YWC) initiated this Secondary Desk Review (SDR) in order to collate existing information related to this subject. The main objective of the SDR is to better understand the severity of WASH needs across the country, as well as underlying causes of these needs, in order to inform appropriate response planning and resource mobilization. Findings will also be used to inform the calculation of the WASH People in Need (PIN) and district severity score figures for 2020.

3. Methodology

3.1. Methodology overview

This SDR was conducted jointly by REACH and the YWC in collaboration with ACAPS between November 2019 and April 2020. As humanitarian access is severely constrained in Yemen, the best suited methodology for this study was deemed to be an SDR.¹² The methodology of this SDR was established jointly by the YWC and REACH and consisted of a review of secondary data and literature related to WASH needs in Yemen. Three different approaches were adopted for obtaining reports and data. Further methodological details can be found in <u>Annex 3</u>.

The methodology of the SDR had three main pillars of data collection:

- 1. Data collected through narrative reports meeting the inclusion criteria for informing the first five indicators (see <u>Annex 1</u>, Table 4) for WASH needs, severity scores and PIN;
 - a. Reports directly obtained from YWC partner organizations;
 - b. Reports obtained from the YWC online assessment registry; and
 - c. Reports obtained through systematic searches on online libraries;
- 2. Data directly obtained from humanitarian partners operating in Yemen for informing latter four indicators (see <u>Annex</u> <u>1</u>, table 4) for informing the WASH needs, severity scores and PIN; and
- 3. Context analysis based on secondary sources, jointly conducted by REACH Initiative and ACAPS.

In total, 117 reports were included for informing Pillar 1 (see Figure 1), four datasets were used for informing Pillar 2, and 69 sources were used for informing Pillar 3.

<https://reliefweb.int/report/yemen/yemen-2019-humanitarian-needs-overview>.

12 ACAPS.

⁶ Bilkis Zabara, 'Enhancing Women's Role in Water Management in Yemen Background and Challenges', Center for Applied Research in Partnership with the Orient (CARPO), 2018.

⁷ REACH Initiative, Yemen WASH Household Assessment 2018, 2019 < https://www.impact-

repository.org/document/repository/34bc403a/reach_yem_report_yem1802_november_2018_0.pdf> [accessed 7 April 2020].

⁸ Conflict and Environment Observatory, 'How Yemen's Conflict Destroyed Its Waste Management System | CEOBS' https://ceobs.org/how-yemens-conflict-destroyed-its-waste-management-system/ [CEOBS' https://ceobs.org/how-yemens-conflict-destroyed-its-waste-management-system/ [CEOBS' https://ceobs.org/how-yemens-conflict-destroyed-its-waste-management-system/ [CEOBS' https://ceobs.org/how-yemens-conflict-destroyed-its-waste-management-system/ [CEOBS' https://ceobs.org/ [CEOBS' https://ceobs.org/ [CEOBS' https://ceo

⁹ Matthew C. Freeman and others, 'The Impact of Sanitation on Infectious Disease and Nutritional Status: A Systematic Review and Meta-Analysis', International Journal of Hygiene and Environmental Health, 220.6 (2017), 928–49 https://doi.org/10.1016/j.ijheh.2017.05.007.

¹⁰ United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), Yemen: 2019 Humanitarian Needs Overview, 2019

¹¹ ACAPS, HUMANITARIAN ACCESS OVERVIEW, 2019.

3.2. Population of interest

For obtaining a complete understanding of the WASH needs in Yemen, the SDR considered the entire country. The SDR assessed needs among different affected populations. These populations included host communities, refugees, migrants, returnees, and IDPs. As findings obtained through this SDR are at the district level, the unit of measurement of this SDR will also be at the district level.

3.3. Secondary data review

For obtaining reports for the first data collection pillar, a brief ten-question online tool was sent by the YWC to its partners, asking if they have conducted any data collection on WASH in 2019. This questionnaire was sent on 23 of November, 2019, asking partners to fill out the online questionnaire by the end of the week (see email and questionnaire in <u>Annex 2</u>). Those partners that indicated that they have collected this data, and who were willing to share this data/report were contacted by REACH asking them to submit the report and/or data. This submission is voluntary, as this data and/or report is owned by the individual organizations.

For gathering findings on the context and underlying causes of WASH needs, but also for informing the first five indicators (see <u>Annex 1</u>, Table 4) for informing the WASH needs, severity scores and PIN, the following sources were consulted:

- 1. Relief Web;
- 2. Google;
- 3. Google Scholar;
- 4. Yemenwater.org (not-for profit online repository for resources relating to water in Yemen, funded by the Dutch Government);
- 5. Humanitarian Data Exchange;
- 6. Yemen WASH Cluster website and its online registry for assessments; and
- 7. Websites of the Yemeni government.

3.4. Data Processing & Analysis

Sixty-three YWC partner organizations filled out the online questionnaire, of which 25 indicated that they had collected primary WASH-related data in 2019 that could be shared. All of these 25 organizations were subsequently contacted by the researchers, and of these contacted organizations, 23 submitted reports. No organizations submitted raw data. Of the 23 submitted reports, 12 were excluded as they did not meet the inclusion criteria, the remaining 11 were included for analysis.

Inclusion of reports obtained for informing the first five indicators (see <u>Annex 1</u>, Table 4) was done in two stages (see Figure 1). Firstly, reports were included upon reading summaries. In the second stage, reports were read full-text. In both phases, reports that do not meet the inclusion criteria listed below were excluded. See section **5.3 Data Processing & Analysis** for an explanation on data extraction and analysis.

Inclusion criteria were as follows:

- 1. Are written in English or Arabic;
- 2. Full-text;
- 3. Present primary findings;
- 4. Present findings collected in Yemen;
- 5. Present findings as collected in 2019;
- 6. Report on at least one of the first five indicators for the WASH needs;
- 7. Indicate in which district(s) data was collected;
- 8. Clarify the data collection method; and
- 9. Indicate the sample size.

The YWC online assessment registry contained 107 reports that were published in 2019. After initial screening, 47 reports were excluded. Upon fully reading the remaining 60 reports, another 12 were excluded for not meeting key inclusion criteria. The searches on ReliefWeb and Google Scholar retrieved 88 results, of which 7 met the inclusion criteria. A Google Scholar search retrieved 8,448 results, none of which were included. Finally, 52 district-level reports from the CCCM Cluster met the inclusion criteria. In total, 117 reports were included for analysis to inform the Core WASH Needs indicators. See <u>Annex 4</u> for the complete list of all included sources.



Figure 1: Flow diagram report selection

For analysing the degree of WASH needs in Yemen, reports obtained through the first pillar of data collection that were relevant to any of the first five indicators (Core WASH indicators) were extracted and analysed manually according to the Framework Analysis method.¹³ As such, data was extracted deductively, according to the indicators that were established prior to conducting data collection. Data was recorded into the data analysis matrix (excel format), also according to the indicators established prior to data collection, in order to produce district-level severity scores and PIN figures. Whenever data did not fit the priory established indicators, or when data did not seem correct, individual decisions were made (see <u>Annex 3</u>).

For estimating the severity of WASH needs in the districts, no established methodology was available and as such we established the following methodology. First, per district, and based on the available data, severity scores for each of the Core WASH Needs indicators were calculated. One weighted average Core Severity Score was then calculated per district. Next, severity scores for each of the Broader WASH Indicators were calculated, and one weighted average Broader Severity Score was calculated per district. Lastly, the Core and Broader indicators were weighted and combined to produce the Overall WASH Severity Score. Based on this Overall Severity Score the number of PIN per district was calculated. This process is described in detail below.

For an exhaustive list of reports that were included for understanding WASH Needs, see Annex 4.

¹³ Aashish Srivastava and S Bruce Thomson, 'Framework Analysis: A Qualitative Methodology for Applied Policy Research', JOAAGFramework Analysis: A Qualitative Methodology for Applied Policy Research. JOAAG, 4.2 (2009) http://research.applicages/a/ad/Framework_analysis.pdf [accessed 20 June 2018].

3.4.1 Severity Score Calculations for the Core WASH Needs Indicators

Data from the 117 reports was used to inform the Core WASH Needs Indicators, presented in Table 1. Data was extracted from the reports manually and put into an analysis matrix that disaggregated relevant district-level for each indicator. Then, for each district, severity scores from zero to six were calculated per indicator, based on the proportion of people in need as indicated in the included assessments (see Classification of Needs and full Severity Scales for each indicator in <u>Annex 1</u>, tables 5 and 6). When more than one report was available per district, a weighted average per indicator for that district was calculated, based on the quality of the different reports (sample size, sampling methodology, data collection method, see <u>Annex 3</u> for a description of all decisions made on this). Finally, an average Core Severity Score per district was calculated, taking a weighted average of the severity scores for the five Core WASH Needs indicators (see Table 1). Three types of average Core Severity Scores were calculated, based on the type of assessments conducted per district:

- 1. Core Severity Scores based only on data from assessments of mixed population groups (including host populations; migrants; refugees; IDPs, etc.);
- 2. Core Severity Scores based only on data from assessments of the needs of IDPs in hosting sites;
- 3. Core Severity Scores based on combining the previous two scores when both types of assessments were conducted in a district. These scores were weighted proportionally according to the proportion of IDPs in that specific district.

Table 1: Core and Broader WASH Indicator weighting

Indicator Type	Indicator	First Weighting Round	Second Weighting Round
	Improved access to water sources	22%	
	Access to minimum water quantities needed	22%	
e	Access to functional and improved sanitation facilities	22%	600/
ပိ	Access to adequate environmental sanitation	17%	00%
	Access to functional handwashing facilities and soap	17%	
	Core WASH Score	100%	
	Global Acute Malnutrition rate	38%	
5	Cholera attack rate	37%	
oad	Infrastructure access rate	20%	40%
Ъ	Flood susceptibility rate	5%	
	Broader WASH Score	100%	
	Overall WASH Score	Total:	100%

3.4.2 Severity Score Calculations for the Broader WASH Indicators

Data for each of the four Broader WASH indicators did not come from the systematic literature search, but rather from datasets provided by different partners directly. As with the Core WASH Needs indicators, data was extracted and analysed at the district level. Drawing on the available data, districts were assigned a Severity Score for each of the four indicators. This was done according to the severity scales presented in <u>Annex 1</u>, table 6. Then, one Broader Severity Score per district was calculated, based on a weighted average of the four Broader WASH indicator severity scores, using the weights outlined in Table 1.

3.4.3 Overall Severity Score Calculations

Finally, the Core and Broader Severity Scores were combined to create an Overall WASH Severity Score. As outlined above, three different types of average Core Severity Score were possible for each district. Depending on the type of Core Severity Score that was available, a certain weighting was applied, as presented in Table 2.

Table 2: Overall Severity Score Calculations (Weighting for Broader and Core Severity Scores)

Type of Core Severity Score	Weigl	nting	Priority	
	Core	Broader		
Core Severity Score (combining mixed populations + IDP only scores)	60%	40%	1 st choice	
Core Severity Score – mixed populations	60%	40%	2 nd choice	
Core Severity Score – IDP only	20%	80%	3 rd choice	
No Core Severity Score available	N/A	100%	4 th choice	

3.4.4 People in Need (PIN) Calculation

PIN figures were calculated per district, based on the Overall Severity Score. This was done by associating each possible value of the Overall Severity Scores with a certain percentage of the population. This percentage of the population would then be classified as in need. The maximum percentage of people in need per district was designated to be 85%. This means that with an Overall Severity Score of one, 14.2% of the population in the district would be classified as in need, and with an Overall Severity Score of two, 28.3% of the population in the district would be classified as in need, and so on. The proportion of the population in Moderate versus Acute Need was decided depending on the Severity Score assigned to the district, as follows:

- Severity score of less than 3: 100% of PIN in Moderate Need;
- Severity score of 3: 75% of PIN in Moderate Need and 25% in Acute Need;
- Severity score of 4: 50% of PIN in Moderate Need and 50% in Acute Need;
- Severity score of 5: 25% of PIN in Moderate Need and 75% in Acute Need;
- Severity score of 6: 100% of PIN in Acute Need.

Following this initial classification, the PIN figures were reviewed by the WASH Cluster and revised in the following manner in order to more accurately reflect the Cluster's understanding of need in each district: when 0% of the people in a district were classified as in Acute Need (as per the methodology above), the 2019 figure of people in Acute Need was used. The 2019 figure for people in Acute Need was also used if the calculated number of people in Acute Need was lower than the 2019 figure, but only when the 2019 WASH covered less than half of the in need population targeted in that district. The number of people in Moderate Need was adapted accordingly, to keep the overall number of PIN the same. Sex and age disaggregated PIN are based on OCHA population figures.

If data from reports and assessments do not exactly fit the indicators, individual decisions were made by the two researchers independently. Final decisions will then be made based on discussions among the two researchers. This was done for triangulation purposes so as to increase reliability of the findings. For more in-depth methodological notes, refer to <u>Annex 3</u>. The final list of Severity Scores per district can be found in <u>Annex 5</u>.

4. Roles and responsibilities

 Table 3: Description of roles and responsibilities

Task Description	Responsible	Accountable	Consulted	Informed
Research design	Assessment Officer	Assessment Officer	Research Manager; YWC; IMPACT Research Design and Data Unit	NA
Supervising data collection	Assessment Officer	Assessment Officer	Research Manager; YWC; IMPACT Research Design and Data Unit	NA
Data processing (checking, cleaning)	Assessment Officer	Assessment Officer	Research Manager; IMPACT Research	YWC

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			Design and Data Unit	
Data analysis	Assessment Officer	Assessment Officer	Research Manager; IMPACT Research Design and Data Unit	YWC
Output production	Assessment Officer	Research Manager	YWC; IMPACT Reporting Unit	NA
Dissemination	Assessment Officer; YWC	Research Manager; YWC	IMPACT Reporting Unit	NA
Monitoring & Evaluation	Assessment Officer	Assessment Officer	Research Manager; IMPACT Research Design and Data Unit	Reporting/Commas
Lessons learned	Assessment Officer	Assessment Officer	Research Manager; IMPACT Research Design and Data Unit	Reporting/Commas

Responsible: the person(s) who executes the task

Accountable: the person who validates the completion of the task and is accountable of the final output or milestone

Consulted: the person(s) who must be consulted when the task is implemented

Informed: the person(s) who need to be informed when the task is completed

5. Data Analysis Plan

Research questions	Data collection method	Indicator / Variable	IN #	Sub indicator	Data categories
			1.1	Main water source	Borehole; Protected well; Protected rainwater tank; Bottled water; Protected spring; Unprotected well; Unprotected rainwater tank; Unprotected spring; Water trucking; River; Pond; Lake
	Systematic literature searches (Pillar 1)	Improved access to water	1.2	Time spent on foot to main water point, fetch water, and return (at peak time)	Water source is located at the property; 30 minutes or less; More than 30 minutes
			2.1	Means of transporting water	Piped water into the house or compound; Water not piped into the house or compound
	Systematic literature search (Pillar 1)	Access to minimum water quantities needed	2.2	Number of litres water per person per day	15 Litres water per person per day or more; Less than 15 litres water per person per day
What % of households have access to safe and adequate WASH services and facilities?			3.1	Type of toilet	Flush latrine to a tank/sewer system/pit; Pit latrine covered/with slab; Flush latrine to the open; Pit latrine open/without slab; Defecation in the open
	Systematic literature search (Pillar 1)	Access to functional and improved sanitation facilities	3.2	Status of the toilet	Functional but dirty; Clean and functional; Not functional and dirty
			4.1	Garbage collection	Regularly; Not regularly
	Systematic literature search (Pillar 1)	Access to adequate environmental sanitation	4.2	Wastewater visibility in vicinity (30 metres) of shelter in last 30 days	Not visible; Yes, once or twice; Yes, three – five times; Yes, there is always visible wastewater in the vicinity of households
	Systematic literature search (Pillar 1)		5.1	Accessibility of handwashing facilities	Yes, accessible; No, not accessible

		Access to functional handwashing facilities with water and soap	5.2	Access to soap and water	Both soap and water; Only soap; Only water; Soap nor water
What is the rate of Global Acute					
Malnutrition (GAM) in districts, if	Nutrition Cluster CAM detect	Clabel Asute Malautritian rate	C	Global Acute Mainutrition rate in	8/ CANA
available?	Nutrition Cluster GAM dataset	Global Acute Mainutrition rate	6	the district	% GAM
What is the Acute Watery					
Diarrhoea (AWD)/cholera attack	Health Cluster Cholera attack			Suspected cholera cases/AWD	
rate in districts?	rate dataset	Cholera Attack Rate	7	in district	Cases per 10,000 population
What is the status of water and	GIZ Yemen Infrastructure Access			HHs accessing functional water	
sanitation systems in Yemen?	Dataset	Infrastructure Access Rate	8	and sanitation infrastructure	Yes; No
				% of populated areas within the	
How is the climate in Yemen	REACH Initiative Flood			district that are highly susceptible	
influencing WASH needs?	Susceptibility Model for Yemen	Flood Susceptibility Rate	9	for floods	%

6. Monitoring & Evaluation Plan

IMPACT Objective	External M&E Indicator	Internal M&E Indicator	Focal point	Tool	Will indicator be tracked?
		# of downloads of x product from Resource Center	Country request to HQ		X Yes
	Number of humanitarian	# of downloads of x product from Relief Web	Country request to HQ		X Yes
Humanitarian stakeholders are	organisations accessing IMPACT services/products	# of downloads of x product from Country level platforms	Country team		□ Yes
accessing IMPACT products	Number of individuals accessing IMPACT services/products	# of page clicks on x product from REACH global newsletter	Country request to HQ	User_log	X Yes
		# of page clicks on x product from country newsletter, sendingBlue, bit.ly	Country team		□ Yes
		# of visits to x webmap/x dashboard	Country request to HQ		□ Yes
IMPACT activities contribute to better program	Number of humanitarian	# references in HPC documents (HNO, SRP, Flash appeals, Cluster/sector strategies)	Country	Reference I	Humanitarian Needs Overview Yemen 2020
implementation and coordination of the humanitarian response	# references in single agency documents	team og			
Humanitarian stakeholders are	Humanitarian actors use IMPACT evidence/products as a basis for decision making, aid planning and delivery	Perceived relevance of IMPACT country-programs	Country team	Usage_Feed back <i>and</i> Usage Surv	Usage survey to be conducted in June 2020, following the release of 1 output targeting at least 1 partner
products	Number of humanitarian	Perceived usefulness and influence of IMPACT outputs		ey template	Informal request for feedback
	documents (HNO, HRP,	Recommendations to strengthen IMPACT programs			nom Guster partner

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	cluster/agency strategic plans, etc.) directly informed by IMPACT products	Perceived capacity of IMPACT staff Perceived quality of outputs/programs Recommendations to strengthen IMPACT programs			
Humanitarian stakeholders are	Number and/or percentage of humanitarian organizations directly	# of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation	_		X Yes
engaged in IMPACT programs throughout the research cycle	contributing to IMPACT programs (providing resources, participating to presentations, etc.)	# of organisations/clusters inputting in research design and joint analysis	Country team	Engagement _log	X Yes
		# of organisations/clusters attending briefings on findings;			X Yes

ANNEX 1: METHODOLOGY TABLES

Table 4: Core and Broader WASH Needs Indicators

Consequence	Indicator	Source	Weighting
	Improved access to water	YWC SDR	22%
NSH	Access to minimum water quantities needed	YWC SDR	22%
e WA	Access to functional and improved sanitation facilities	YWC SDR	22%
Lind Core	Access to adequate environmental sanitation	YWC SDR	17%
Access to functional handwashing facilities and	Access to functional handwashing facilities and soap	YWC SDR	17%
	Global Acute Malnutrition rate	Nutrition Cluster	38%
lder SH ators	Cholera attack rate	Health Cluster	37%
Broa WA Idica	Infrastructure access rate	GIZ	20%
-	Flood susceptibility rate	REACH 2019	5%

Table 5: Classification of Need for all WASH Needs Indicators

INDICATOR 1: IMPROVED ACCESS TO WATER SOURCES		No Need	Need
1.1 Main water source in the district		Protected water source	Unprotected water source
Borehole/Protected well/Protected rainwater tank/Bottled water/Protected spring	Improved		
Unprotected well/Unprotected rainwater tank/Unprotected spring/Water trucking, River, Pond or	Unimproved	AND	OR
Lake	Onimproved		
1.2 Time spent on foot to main water point, fetch water, and return (at peak time)		Short commute	Long commute
Water source is located at the property/30 minutes or less	Short commute		
More than 30 minutes	Long commute		
INDICATOR 2: ACCESS TO MINIMUM WATER QUANTITIES NEEDED		No Need	Need
2.1 Means of transporting water		Piped into compound	Less than 15 litres
Piped water into the house or compound	Piped to compound		
Water not piped into the house or compound	Not piped to compound	OR	
2.2 Number of litres water per person per day			
15 litres water per person per day or more	15 litres or more	15 litres or more	
Less than 15 litres water per person per day	Less than 15 litres		
INDICATOR 3: ACCESS TO FUNCTIONAL AND IMPROVED SANITATION FACILITIES		No Need	Need
3.1 Type of toilet		Improved	Unimproved
Flush latrine to a tank/sewer system/pit/Pit latrine – covered/with slab	Improved		
Flush latrine to the open/Pit latrine - open/without slab/defecation in the open	Unimproved	AND	OR
3.2 Status of the toilet			
Functional but dirty/Clean and functional	Functional	Functional	Not functional
Not functional and dirty	Not functional		
INDICATOR 4: ACCESS TO ADEQUATE ENVIRONMENTAL SANITATION		No Need	Need
4.1 Garbage is regularly collected		Garbage collected	Garbage not collected
Yes	Garbage collected		
No	Garbage not collected	AND	OR
4.2 Household witness visible wastewater in the vicinity (30 metres) of their shelter in the last	30 days		
No/Yes, once or twice	Little or no wastewater	Little or no wastewater	Much wastewater
Yes, three – five times/Yes, there is always visible wastewater in the vicinity of the household	Much wastewater		
INDICATOR 5: ACCESS TO FUNCTIONAL HANDWASHING FACILITIES AND SOAP		No Need	Need
5.1 Household have a handwashing facility		Facilities	No facilities
Yes	Facilities		
No	No facilities	AND	OR
5.2 Household have water with soap in the handwashing facility			
Both water and soap	Water and Soap	Water and Soap	No water/soap
Soap only/Water only/No water and soap	No water/soap		
INDICATOR 6: GLOBAL ACUTE MALNUTRITION RATE	% of Global Acute Malnutrition in district		
INDICATOR 7: CHOLERA ATTACK RATE	Suspected cholera cases/AWD per 10,000 population	on	
INDICATOR 8: INFRASTRUCTURE ACCESS RATE	HHs accessing functional water and sanitation infra	structure per HHs connected to wa	ter and sanitation infrastructure
INDICATOR 9: FLOOD SUSCEPTIBILITY RATE	% of populated areas within the district that is highly	/ susceptible for floods	

Table 6: WASH Severity Scales

INDICATOR	1: IMPROVED	ACCESS TO	WATER	SOURCES

0	1	2	3	4	5	6
90%-100% have access	75%-89% have access	60%-74% have access	45%-59% have access	30%-44% have access	15%-29% have access	0%-14% have access
INDICATOR 2: ACCESS TO	MINIMUM WATER QUANTITIES NE	EDED				
0	1	2	3	4	5	6
90%-100% have access	75%-89% have access	60%-74% have access	45%-59% have access	30%-44% have access	15%-29% have access	0%-14% have access
INDICATOR 3: ACCESS TO	FUNCTIONAL AND IMPROVED SAM	NITATION				
0	1	2	3	4	5	6
90%-100% have access	75%-89% have access	60%-74% have access	45%-59% have access	30%-44% have access	15%-29% have access	0%-14% have access
INDICATOR 4: ACCESS TO	ADEQUATE ENVIRONMENTAL SAI	NITATION				
0	1	2	3	4	5	6
90%-100% have access	75%-89% have access	60%-74% have access	45%-59% have access	30%-44% have access	15%-29% have access	0%-14% have access
INDICATOR 5: ACCESS TO	FUNCTIONAL HANDWASHING FAC	CILITIES AND SOAP				
0	1	2	3	4	5	6
90%-100% have access	75%-89% have access	60%-74% have access	45%-59% have access	30%-44% have access	15%-29% have access	0%-14% have access
INDICATOR 6: GLOBAL AC	JTE MALNUTRITION RATE					
0	1	3		4	5	6
GAM is 0%	GAM is between 0.1% and 4.9%	GAM is between 5 and 9.9%		GAM is between 10 and 14.9%	GAM is between 15 and 19.9%	GAM is 20% or more
INDICATOR 7: CHOLERA A	TACK RATE					
0	1	2	3	4	5	6
Suspected cholera cases/AWD is 0 per 10,000 population	Suspected cholera cases/AWD is between 0 and 0.9 per 10,000 population	Suspected cholera cases/AWD is between 1 and 9.9 per 10,000 population	Suspected cholera cases/AWD is between 10 and 99 per 10,000 population	Suspected cholera cases/AWD is between 100 and 199 per 10,000 population	Suspected cholera cases/AWD is between 200 and 499 per 10,000 population	Suspected cholera cases/AWD is 500 or more per 10,000 population
INDICATOR 8: INFRASTRUCTURE ACCESS RATE						
0	1	2	3	4	5	6
85%-100% have access	71%-84% have access	57%-70% have access	42%-56% have access	28%-41% have access	14%-27% have access	0%-13% have access
INDICATOR 9: FLOOD SUSC	EPTIBILITY RATE					
0	1	2	3	4	5	6
85%-100% of populated areas within the district that is highly susceptible for floods	71%-84% of populated areas within the district that is highly susceptible for floods	57%-70% of populated areas within the district that is highly susceptible for floods	42%-56% of populated areas within the district that is highly susceptible for floods	28%-41% of populated areas within the district that is highly susceptible for floods	14%-27% of populated areas within the district that is highly susceptible for floods	0%-13% of populated areas within the district that is highly susceptible for floods

ANNEX 2: PARTNER EMAIL AND SURVEY

YWC Partner Email

Dear Yemen WASH Cluster Partners,

For informing the 2020 Humanitarian Needs Overview (HNO), REACH is conducting a Secondary Desk Review (SDR) on WASH-related data collected in Yemen. REACH is currently looking for WASH-related data that was collected in 2019, by WASH-Cluster partner organizations.

For understanding which organizations have which type of data, we would appreciate if you could to take a few minutes to fill out this 10-guestion online tool by the end of this week (30 November). It would greatly help the WASH Cluster in informing the HNO and understanding what and where the most urgent WASH-needs are for 2020. So if your organization has collected WASH-related data 2019. kindly fill out this online questionnaire: any in https://ee.humanitarianresponse.info/single/::6kbWwa75

Should you have any questions, or encounter any issues on the questionnaire, you can contact Noortje Gerritsma, WASH Assessment Officer at REACH at <u>noortje.gerritsma@reach-initiative.org</u>.

YWC Partner Questionnaire

- What is the name of your organization?
- If other, please specify:
- Does your organization conduct WASH related programming?
- In which governorate(s) does your organization conduct WASH-related programming?
- Did your organization collect any WASH-related data in 2019?
- How many WASH-related data collection exercises did your organization conduct in 2019?
- Please provide details of each data collection exercise by answering the following set of questions. These questions will repeat based on the number of data collection exercises your organization conducted in 2019.
- Did the data collection exercise use mixed methods?
- What methods of data collection were used?
- What method of data collection was used?
- How many key informant interviews were conducted as part of this data collection exercise?
- How many focus group discussions were conducted as part of this data collection exercise?
- How many household surveys were conducted as part of this data collection exercise?
- How many observation checklists were completed as part of this data collection exercise?
- How were households selected for the household surveys?
- What type of information was collected through this data collection exercise?
- If other, please specify:
- Does your organization have the raw data from this data collection exercise?
- Would your organization be willing to share this data with REACH?
- What is the name of the person REACH can contact regarding the sharing of data?
- What is the email address of \${contact}?
- What is the phone number of \${contact}?
- Thank you very much for your time and your participation in this survey

ANNEX 3: METHODOLOGY NOTES

This annex describes the rationale and justification for approaches used to deal with discrepancies in the data analysed, as well as individual decisions relating to the severity scores for particular districts.

Percentages in reports do not add up to 100%

Below is a list of all instances where findings of selected options for a reported indicator (presented in percentages) did not add up to 100%. These instances only reflect when findings added up to less than 95%; between 95% and 100% was considered to be a rounding error. So in all instances below there is an unaccounted for percentage greater than 5% that was not described in the report. If there are instances where the two numbers are over 100%, these were not flagged, as it was assumed that these were due to rounding errors (between 95% -103%), or instances where participants could select multiple answer options (104% and above).

Below is a list of the different approaches taken to deal with instances of percentages not equal to 100:

- a. If there is an "other" category, this category was deleted and remaining percentages were increased proportionally;
- b. If percentages added up to below 95%, and there was no "other" category or other obvious reason that could explain this, percentages were left as such, but highlighted red the data analysis matrix. These cases are listed in Table 8:

 Table 8: Cases where findings do not add up to 100%

Report Title, Date, Name of Organization	Governorate	District	Indicators
WASH Needs Assessment Report Hadramout Governorate, November 2019, Al-Awn Foundation for Development and Millennium Development Foundation	Hadramawt	Hajar	1b; 3a; and 5a
Narrative of Needs Assessment 2nd Allocation; November 2019, Relief and Development Peer Foundation	Amran	Thula	1a
		Juban	1a
WASH Need Assessment; June 2019, Yemen Family Care Association	Dhale	Al Husha	1a
WASH Needs Assessment Report Wusab Al Ali District Dhamar Governorate; February 2019, Relief and Development Peer Foundation	Dhamar	Wusab Al Ali	1b and 3a

Calculating Core Severity Scores

Below a description of how each of the five Core Severity Scores were calculated per report per district. For assessments conducted in IDP hosting sites, severity scores were assigned dichotomously. This means that depending on the data, Severity Scores were either zero, or six. A Severity Score of six was assigned if Key Informants indicated that the service was first, second, or third priority. A Severity Score of zero was assigned if Key Informants responded that the service was not a priority. This needs to be taken into account when interpreting the findings of this SDR.

Indicator 1: Improved access to water sources Sub-indicator 1a: Type of water source

Sub-indicator 1b: Water collection time

For calculating a Severity Score for Indicator 1, <u>Annex 1</u>, table 5 indicates that two conditions have to be met for being classified as *not in need*. These conditions are:

- 1. Having access to a protected water source (<u>Annex 1</u>, table 5 defines *improved water sources*);
- 2. Collection time for water from the main water source should not exceed 30 minutes for a round trip during peak time.

However, most sources did not report the percentage of respondents who met both conditions, but rather presented the percentage of respondents per district that had access to improved water sources and the percentage of respondents per district for whom collecting water did not exceed 30 minutes. As both conditions had to be met for being classified as *not in need*, the Severity Score for this indicator was determined by the lowest among the both percentages. For example, if 60% of HHs have access to an improved water source and 10% of households have a commute of less than 30 minutes, no more than 10% of households can have **both** a short commute and access to an improved water source. As such, the Indicator 1 Severity Score for this source will be six (according to <u>Annex 1</u>, table 5).

In some instances, one of the sub-indicators was not reported upon. In this case, the Indicator 1 Severity Score was determined based on the percentage of one sub-indicator.

Indicator 2: Access to minimum water quantities needed

Based on both expert consultations as well as guidance from the SPHERE Handbook, the minimum water quantity per person per day was initially set at fifty litres.¹⁴ During data analysis however, it was noticed that hardly any of the included reports actually mentioned the percentage of respondents who accessed fifty litres per person per day. Rather, sources reported more frequently on the rate of people accessing 15 litres per person per day. As such, the classification for this indicator was changed to be 15 litres per person per day, so that better analysis was possible. However, it remains worth noting that, as mentioned in the SPHERE Handbook, 15 litres allow for survival, but more is needed for maintaining health and dignity. In addition, households reported to have piped water into their compounds or households are classified as *not in need*.

Some reports stated the average amount of water consumed in litres. In these instances, it was assumed that the majority (i.e. 50.1% of the surveyed population) have access to this average.

The CCCM Site Reports stated whether water was a first, second or third priority need, or not a priority need. When water was reported to be a priority need, a Severity Score if six was assigned. If water was not reported as a priority need, a Severity Score of zero was assigned.

Indicator 3: Access to functional and improved sanitation facilities Sub-indicator 3a: Type of latrine Sub-indicator 3b: Status of latrine

For calculating Severity Scores for Indicator 3, <u>Annex 1</u>, Table 5 indicates that two conditions have to be met for being classified as *not in need*. These conditions are:

- 1. Having a handwashing facility;
- 2. Having soap and water.

However, most sources did not report the percentage of respondents who met both conditions, but rather presented the percentage of respondents per district that had handwashing facilities and the percentage of respondents per district who had soap and water. As both conditions had to be met for being classified as *not in need*, the Severity Score for this indicator was determined by the lowest of the two percentages. For example, if 50% of HHs have handwashing facilities and 30% of households had soap and water, no more than 30% of households can have **both** a handwashing facility and soap and water. As such, the Indicator 4 Severity Score for this source will be five (according to <u>Annex 1</u>, table 6).

In some instances, one of the sub-indicators was not reported upon. In this case, the Indicator 2 Severity Score was determined based on the percentage of one sub-indicator.

In some cases, reports only detailed a percentage of respondents that had access to latrines. In these instances, those people were classified as *not in need*.

Indicator 4: Access to adequate environmental sanitation

Sub-indicator 4a: Presence of waste water

Sub-indicator 4b: Garbage collection

For calculating Severity Scores for Indicator 4, <u>Annex 1</u>, table 5 indicates that two conditions have to be met for being classified as *not in need*. These conditions are:

1. Household garbage is being regularly collected;

¹⁴ IFRC, The Sphere Handbook, The Sphere Project Humanitarian Charter and Minimum Standards in Humanitarian Response, 2018, I https://doi.org/ISBN 978-1-908176-00-4>.

2. The absence of visible wastewater in the vicinity (30 metres) of the shelter.

However, most sources did not report the percentage of respondents who met both conditions, but rather presented the percentage of respondents per district indicating that garbage was being collected and the percentage of respondents per district who had no visible wastewater. As both conditions had to be met for being classified as *not in need*, the Severity Score for this indicator was determined by the lowest of the two percentages. For example, if 80% of HHs indicate that garbage is being regularly collected and 60% of households have no visible wastewater near their shelters, no more than 60% of households can have **both** garbage being collected and no visible wastewater near their shelters. As such, the Indicator 5 Severity Score for this source will be two (according to <u>Annex 1</u>, table 6).

In some instances, one of the sub-indicators was not reported upon. In this case, the Indicator 5 Severity Score was determined based on the percentage of one sub-indicator.

Indicator 5: Access to functional handwashing facilities and soap Sub-indicator 5a: Access to soap Sub-indicator 5b: Access to handwashing facilities

For calculating Severity Scores for Indicator 5, <u>Annex 1</u>, table 5 indicates that two conditions have to be met for being classified as *not in need*. These conditions are:

- 1. Having access to improved latrines (<u>Annex 1</u>, table 5 defines improved latrines);
- 2. Having access to clean and functional latrines.

However, most sources did not report the percentage of respondents who met both conditions, but rather presented the percentage of respondents per district that had access to improved latrines and the percentage of respondents per district who had access to clean and functional latrines. As both conditions had to be met for being classified as *not in need*, the Severity Score for this indicator was determined by the lowest among the both percentages. For example, if 70% of HHs have access to an improved latrine and 20% of households have access to clean and functional latrines, no more than 20% of households can have **both** access to clean and functional latrines and access to improved latrines. As such, the Indicator 3 Severity Score for this source will be four (according to <u>Annex 1</u>, table 6).

In some instances, one of the sub-indicators was not reported upon. In this case, the Indicator 5 Severity Score was determined based on the percentage of one sub-indicator.

Lastly, some reports made a distinction between "having [soap] or [handwashing facilities]", and "having [soap] or [handwashing facilities] as confirmed by the enumerator". If this was the case, the sum of the percentage of respondents "having" and "having as confirmed by the enumerator" (provided both categories were mutually exclusive) was taken and classified as *not in need*. Even though one could argue that if the soap or handwashing facility was not seen by the enumerator, one might not be sure of its existence, it was decided to categorize both as *not in need*, as the vast majority of reports only reported on whether or not households has soap or handwashing facilities without mentioning whether or not this was confirmed by the enumerator. To allow for more data to be included, it was decided to classify both instances as *not in need*.

Subjective data

Many reports have stated that "the majority" of households within a district lack access to water, etc. In these cases, the severity score was initially given as a range, i.e. between three and six. Initially, the handling of these cases was done in line with last year's Severity Scores calculation methodology. However, it appeared that this methodology was not precise, as it was producing many scores of six. Subsequently, individual judgements were made based on the narratives of the reports, the nature of the different indicators, and other supporting documentation available at the time on the situation related to that indicator in that district. These judgement calls were made by both researchers independently first. Then, researchers reached consensus through discussions on the final severity scores for each of these cases.

Furthermore, some reports mentioned that "at least X% of respondents accessed e.g. improved water sources", or "maximum X% of respondents accessed e.g. improved latrines". Also here, initially, severity scores were given as a range,

i.e. between zero and three (for the first example), or e.g. between three and six (for the latter example). However, later these ranges were also changed to be specific numbers. Individual judgements were made based on the narratives of the reports, the nature of the different indicators, and other supporting documentation available at the time on the current situation related to that indicator in that district. These judgement calls were made by both researchers independently first. Then, researchers reached consensus through discussions on the final severity scores for each of these cases. These cases are listed in Table 9:

Table 9: Cases where Severity Scores were decided through consensus

Report Title, Date, Name of Organization	Governorate	District	Indicators
WASH Needs Assessment Report, July 2019, International Organization for Migration	Abyan	Ladwar	3
Bani Mushta camp - Bani Thwab sub-district - Abs district - Hajjah governorate,		Abs	3 and 4
[publication date unknown], Medicins Sans Frontieres	Hajjah	Abs	1 and 3
Building Foundation for Development, 13 February 2019, Building Foundation for Development	Al Hodeidah	At Tuhayta	1
Improved Access To Essential Goods Through Cash Transfers - Endline Survey Report, June 2019, CARE	Hajjah	Ku'aydinah	2
Initial Situation Assessment, June 2019, CARE	Ad Dali'	Al Azariq	5
Integrated basic emergency assistance to conflict-affected and vulnerable communities		Ku'aydinah	2
in Yemen project - Baseline Survey Report, September 2019; CARE	Hajjah	Ash shaghadirah	2
Needs Assessment Wash project, February 2019, National Prisoner Foundation	Hajjah	Mustabe	2
Needs Assessment; 15 February 2019, Resilient Communities Organization	Hajjah	Hayran	1; 2; and 3
Rapid Need Assessment in Mahweet Province (Mahweet Governorate), October 2019, CARE	Ad Dali'	Al Azariq	1 and 5
Rapid Need Assessment Integrated Health & WASH January-February 2019 Yemen	Hadramawt	Al Abr	1
Family Care Association	Ad Dali'	Qa'tabah	5
Rapid Needs Assessment Milhan District - Al Mahwit Governorate, Yemen, August 2019, CARE	Al Mahwit	Melhan	1 and 3
Report on Multi-Sectoral Rapid Assessment in Bni Qais District Hajjah Governorate, Yemen, January 2019; CARE	Hajjah	Bain Qays	1 and 3
Report on Multi-Sectoral Rapid Needs Assessment in Alzedeah and Al Munera Districts		Al Munirah	1 and 2
of Alhudeidah Governorate, Yemen, January 2019, All Girls Development Foundation	Al Hodeidah	Az Zaydiah	1 and 2
UN Inter-Agency Mission Report, 25 September 2019, UN OCHA	Dhamar	Dhamar City	4
WASH Needs Assessment Report	Tai'z	Al Ma'afer	3
WASH Needs Assessment Report, February 2019, Abs Development Organization for Women and Child	Hajjah	Abs	2 and 5
WASH needs assessment report, June 2019, LIFD Foundation For Development	Ad Dali'	Damt	4
WASH Needs Assessment Report, October 2019, International Organization for Migration	Shabwah	Mayfa'ah	1; 3; and 5
WASH Needs Assessment Report, September 2019, International Organization for		Ash	
Migration:	Ta'iz	Shamayatayn	1; 2; 3; and 4
WASH Needs Report, July 2019, International Organization for Migration	Lahj	Wa Al Aarah	2
WASH Rapid Needs Assessment Report, November 2019, Danish Refugee Council	Hajjah	Aflah Al Yaman	2
Water Sanitation, Hygiene (WASH) Rapid Needes Assessment Report, November 2019, Norwegian Refugee Council	Al Hodeidah	Az Zuhra	1 and 3
Watsan and shelter assessment Alnassarah (Al Hajah Alolia camp) Bani Thwab sub- district - Abs district - Hajjah governorate, 5 February 2019, Medicins Sans Frontieres	Hajjah	Abs	1 and 3
Yemen - Abs - Hodeish IDP Camp Deep Watsan assessment, [publication date unknown], Medicins Sans Frontieres	Hajjah	Abs	4 and 5
Yemen Multi sectoral rapid need assessment report, 3 January 2019, ZOA	Lahj	Al Qubaytah	1 and 3

Key Informant findings

Some of the KII reports used closed ended questions asking the key informants what share of the community had access to certain facilities or services. As such, these reports presented findings in a way that did not exactly match the Classifications of Need (<u>Annex 1</u>, table 5) as used in this SDR. Rather, these reports stated that e.g. 32% of key informants say "few community members have access to improved latrines" or 9% of key informants say "most community members have access to improved latrines".

Figure 1: Example Key Informant findings



In cases were reporting was done like this, findings were extracted that were most frequently reported. In the example above, the answer that was most frequently reported by Key Informants was: "Few (25%) have access to improved latrines". This answer was chosen 32% by Key Informants. This means that in this example, the finding reported for our SDR based on the assessment that this example came from was: 25% of the community members have access to improved latrines. Table 10 presents a list of the cases in which the above methodology was applied:

Table 10: Cases where key informants reported different rates

Report Title, Date, Name of Organization	Governorate	District	Indicators
Rapid Need Assessment in Mahweet Province (Mahweet Governorate)	Al Mahwit	Melhan	3 and 5
		Al Mina	1; 3; and 5
WASH Needs Assessment, 2019, LMMPO	Al Hodeidah	Al Hali	3 and 5

Calculating One Severity Score per District

As some districts had multiple scores per indicator (based on data from multiple reports), Severity Scores for each of the indicators were merged, so as to produce one Severity Score per indicator per district. Weighted averages were taken of the different scores so as to produce one score per indicator per district. Weighing was done based on the quality of the assessment (sample size, sampling methodology, data collection method, etc.), and individual decisions were made for all of the cases. Those decisions were made based upon consensus between both researchers. All individual decisions are listed below per district and highlighted in green in the data analysis matrix.

Table 11:	Merging	of Core	Severity	Scores
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Governorate	District	Weighting
lbb	Al Qafr	Severity Scores from the different reports were weighted equally
Abyan	Khanfar	Nahda Makers Organization: 70%; Abyan Youth Foundation: 30%
Tai'z	Mawza'	BCFHD: 70%; Solidarités International: 30%
Hajjah	Abs	Severity Scores from the different reports were weighted equally

	Mustaba	Severity Scores from the different reports were weighted equally
	Khayran Al Muharraq	Severity Scores from the different reports were weighted equally
	Ku'aydinah	Severity Scores from the different reports were grouped into two groups based on similarity in the quality of the assessment. A weighted average of the groups was taken. Group 1: OXFAM; CARE (Integrated basic emergency assistance to conflict-affected and vulnerable communities in Yemen project - Baseline Survey Report, September 2019). Severity Scores from these reports were weighted equally. Group 2: CARE (Improved Access To Essential Goods Through Cash Transfers - Baseline Survey Report, February 2019); CARE (Improved Access To Essential Goods Through Cash Transfers - Endline Survey Report, June 2019). Severity Scores from these reports were weighted equally. Group 1: 30%; Group 2: 70%.
Dhamar	Jahran	Severity Scores from Sama AI Yemen Development Foundation were used where available, data from CCCM was used if no data from Sama AI Yemen was available.
Sana'a	Hamdan	Severity Scores from Sama AI Yemen Development Foundation were used where available, data from CCCM was used if no data from Sama AI Yemen was available.
Lahj	Al Qubaytah	Yemen Family Care Association 60%; ZOA 40%;
Ma'rib	Ma'rib City	Severity Scores from the different reports were grouped into two groups based on similarity in the quality of the assessment. A weighted average of the groups was taken. Group 1: Sama Al Yemen Development Foundation; Al-Burdhan Foundation for Development and Relief. Findings from these reports were weighted equally. Group 2: CCCM Site Report Group 1: 80%; Group 2: 20%.
Al Mahwit	Melhan	Severity Scores from the different reports were weighted equally
	Juban	Severity Scores from the different reports were weighted equally
	Damt	Severity Scores from the different reports were weighted equally
	Qa'tabah	Severity Scores from the different reports were weighted equally
	Ad Dali'	Action Contre la Faim: 80%; CCCM Site Report: 20%
Ad Dali'	Al Azariq	Severity Scores from the different reports were weighted equally

Sources for Broader Indicators

Global Acute Malnutrition rate

Data for informing the indicator for GAM was obtained from the Yemen Nutrition Cluster via the YWC. Both rates for GAM per district as well as the Severity Scale for classifying these GAM rates were provided by the Yemen Nutrition Cluster. The Severity Scores based on GAM rates for all of the districts were also provided by the Cluster.

Cholera Attack rate

Data for informing the indicator in Cholera Attack rates were obtained from the Yemen Health Cluster via the YWC. Attack Rates per district were calculated based on the number of reported suspected cholera cases or AWD cases per 10,000 population. The Severity Scale for classifying Cholera Attack Rates were also provided by the Yemen Health Cluster.

Infrastructure access rate

Data for informing the indicator on access to water and sanitation infrastructure was obtained from GIZ. This data came from an infrastructure access assessment conducted in 2018.¹⁵ Data obtained from GIZ assessed both access to water infrastructure as well as access to sanitation infrastructure. The study assessed the number of people who had access to (functional or non-functional) water or (functional or non-functional) sanitation infrastructure in 59 districts. In addition, the

¹⁵ GIZ, 'Yemen Water Sector - Damage Assessment Report of Twelve Water Supply and Sanitation Local Corporations (LCs) and Their Affiliated Branch Offices and Utilities – Stage III Part 2 : Situation Assessment Report and Development of Technical', 2018.

study assessed the number of people who had access to functional water infrastructure or functional sanitation infrastructure. For the SDR, data for both water and sanitation infrastructure was combined, calculating the proportion of people who had access to both functional water and sanitation infrastructure. For calculating this, the lowest access rate among the both rates (for water and sanitation infrastructure) was taken. For example, if 60% of HHs in the sample has access to functional water infrastructure, but only 30% of HHs has access to functional sanitation infrastructure, this means that no more than 30% of HHs in the sample can have to **both** functional water and sanitation infrastructure.

After calculating the access rates, Severity Scores were assigned. This was done based on based on the scale as presented in <u>Annex 1</u>, table 6.

Flood susceptibility rate

Flood susceptibility was assessed by the GIS unit of REACH Initiatives. The assessment was based on a number of different indicators.¹⁶ The methodology for this incorporates data from 9 different indicators, from seven different sources. The data used for the SDR is at district level and combines a flood susceptibility score with population density data. Population density was classified on a four-point scale, where the least populated areas were areas with no human inhabitants. These areas were left out of the calculations. In addition, flood susceptibility data that was used classified susceptibility on a seven-point scale, where only the two highest classes are regarded as highly susceptible for floods. As such, the flood susceptibility rate informing this indicator presents the populated areas that are at high susceptibility for flood as a proportion of all populated areas in the district. After calculating these rates, Severity Scores were assigned. This was done based on based on the scale as presented in <u>Annex 1</u>, table 6.

¹⁶ REACH, 'YEMEN FLOOD SUSCEPTIBILITY ANALYSIS METHODOLOGY', 2019 https://www.impact-repository.org/document/reach/8a9165b9/reach_yem_methods_shelter_floodrisk_v9_sept2019.pdf>.

ANNEX 4 : INCLUDED REPORTS	, SYSTEMATIC LITERATURE SEARCH FOR	CORE WASH NEEDS INDICATORS
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#	Name of Report	Date of Publication	Partner Organization
1	Abs RNA KII Summary	Dec-19	OXFAM
2	Al Rugmah Alsofla IDPs camp Bani Thawab sub district - Abs district - Hajjah governorate		MSF
3	Bani Mushta camp - Bani Thwab sub-district - Abs district - Hajjah governorate		MSF
4	CCCM Site Report (52 reports)	20-Jan 2020	CCCM Cluster
5	IDP Camps Needs Report	21-Mar-19	Abs Development Organization for Women and Child
6	IDPs Hosting Site Baseline Assessment	Jun-19	Abs Development Organization for Women and Child
7	Improved Access To Essential Goods Through Cash Transfers - Baseline Survey Report	Feb-19	CARE
8	Improved Access To Essential Goods Through Cash Transfers - Endline Survey Report	Jun-19	CARE
9	In Water	Oct-19	Al-Awn Foundation for Development
10	In Water	Oct-19	Al-Awn Foundation for Development
11	Initial Situation Assessment	Jun-19	CARE
12	Integrated basic emergency assistance to conflict-affected and vulnerable communities in Yemen project - Baseline Survey Report	Sep-19	CARE
13	KAP Survey Report Taiz & Dhale'e	Sep-19	IMC

14	Kuaidenah RNA KII Summary	Dec-19	OXFAM
15	Multi-sectoral needs assessment report		CARE
16	Narrative of Needs Assessment 2nd Allocation	Nov-19	Probably Relief and Development Peer Foundation
17	Needs Assessment	13-Feb-19	Building Foundation for Development
18	Needs Assessment	13-15 February 2019	Resilient Communities Organization (RECO)
19	Needs Assessment of IDPs and Host HHs in Mawza and Mawiyah Districts in Taiz Governorate	Jan-19	BCFHD
20	Needs Assessment Wash project	Feb-19	National Prisoner Foundation
21	Rapid FSL and basic WASH needs assessment report	Feb-19	Solidarités International
22	Rapid Need Assessment in Mahweet Province (Mahweet Governorate)	Oct-19	CARE
23	Rapid Need Assessment Integrated Health & WASH	January - February 2019	Yemen Family Care Association (YFCA)
24	Rapid Needs Assessment in IDPs hosting sites in Dhamar , Marib, and Sana'a governorates	25th- 30th December 2018	Sama Al Yemen Development Foundation
25	Rapid Needs Assessment Milhan District - Al Mahwit Governorate, Yemen	Aug-19	CARE
26	Rapid Needs Assessment of The existing Water points in Salh, Alqahira and Almodhafar Districts of Taiz Governorate	Aug-19	BCFHD
27	Report about Humanitarian situation in AL-Mahweet Mailhan District caused by heavy rains	7-Aug-19	Human Life for Development and Relief
28	Report on Multi-Sectoral Rapid Assessment in Bni Qais District Hajjah Governorate, Yemen	Jan-19	CARE

29	Report on Multi-Sectoral Rapid Needs Assessment in Alzedeah and Al Munera Districts of Alhudeidah Governorate, Yemen	Jan-19	All Girls Development Foundation
30	RRM Household Assessment Report	Jun-19	ACF
31	Survey Methodology	Apr-19	ADRA
32	UN Inter-Agency Mission Report	25-Sep-19	UN OCHA
33	WASH & Cholera Assessment at Al Azareq, AL Shuaib, Qataibah, Musaimeer, Juban, Damt & Qatabah Districts in Al Dhalea & Lahj Governorates	10-22 October 2019	Yemen Family Care Association (YFCA)
34	WASH & Nutrition Needs Assessment Report	15-Jan-19	Direct Aid
35	WASH Need Assessment	Jun-19	Yemen Family Care Association (YFCA)
36	WASH Need Assessment Report of As silw district Taizz Governorate.	28-Jan-19	Tamdeen Youth Foundation
37	WASH Needs Assessment	2019	LMMPO
38	WASH Needs Assessment in Catchment Area Ghaleel Health Facility Al Hawak District	Feb-19	Tamdeen Youth Foundation
39	WASH Needs Assessment of Al Mathaf Camp - Marib	Mar-19	Al-Burdhan Foundation for Development and Relief (BDR)
40	WASH Needs Assessment Report	Feb-19	Abs Development Organization for Women and Child
41	WASH Needs Assessment Report	May-19	Al-Awn Foundation for Development and Millenium Development Foundation
42	WASH Needs Assessment Report	Oct-19	ЮМ

43	WASH Needs Assessment Report	Oct-19	IOM
44	WASH Needs Assessment Report	Sep-19	ЮМ
45	WASH Needs Assessment Report	Jul-19	ЮМ
46	WASH Needs Assessment Report	Jul-19	ЮМ
47	WASH needs assessment report	Jun-19	LIFD Foundation For Development
48	WASH Needs Assessment Report	Feb-19	National Foundation for Development and Humanitarian Response (NFDHR)
49	WASH Needs Assessment Report	Nov-19	Relief and Development Peer Foundation (RDP)
50	WASH Needs Assessment Report	Feb-19	Relief and Development Peer Foundation (RDP)
51	WASH Needs Assessment Report - Hodeidah (Al-Mighlaf District)	Nov-19	All Girls Development Foundation
52	WASH Needs Assessment Report Governorate Hadramout	Nov-19	Al-Awn Foundation for Development
53	WASH Needs Assessment Report Hadramout Governorate	Novemver 2019	Al-Awn Foundation for Development
54	WASH Rapid Needs Assessment Report	Nov-19	DRC
55	Water Sanitation and Hygiene Need Assessment Report	Feb-19	Nahda Makers Organization
56	Water Sanitation, Hygiene (WASH) Rapid Needes Assessment Report	Nov-19	NRC
57	Watsan and shelter assessment Alnassarah (Al Hajah Alolia camp) Bani Thwab sub-district - Abs district - Hajjah governorate	5-Feb-19	MSF

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58	Yemen - Abs - Hodeish IDP Camp Deep Watsan assessment		MSF
59	Yemen Multi sectoral rapid need assessment report	3-Jan-19	ZOA
60	تقرير املسح امليداني ضمن مشروع املياة والصرف الصحي يف حمافظة ابني مديريتي زجنبار وخنفر		Abyan Youth Foundation (AYF)
61	جمع معلومات عن فجوة الاصحاح البيني		Stars Foundation for Sustainable Development
62	قائمة بنقاط المياه التي تم مسحها أثناء التقييم السريع لمديريات (صالة- القاهرة –المظفر) – محافظة تعز		BCFHD
63			IMC

ANNEX 5 : LIST OF SEVERITY SCORES BY DISTRICT

P-Code	District	Score	P-Code	District	Score	P-Code	District	Score
YE1101	Al Qafr	4.7	YE1402	Nati'	3.3	YE1601	Khab wa Ash Sha'f	2.9
YE1102	Yarim	3.7	YE1403	Maswarah	2.8	YE1602	Al Humaydat	4.2
YE1103	Ar Radmah	3.7	YE1404	As Sawma'ah	4.1	YE1603	Al Matammah	3.8
YE1104	An Nadirah	3.3	YE1405	Az Zahir	3.7	YE1604	Az Zahir	3.8
YE1105	Ash Sha'ir	2.8	YE1406	Dhi Na'im	4.2	YE1605	Al Hazm	3.4
YE1106	As Saddah	3.7	YE1407	At Taffah	4.2	YE1606	Al Mutun	3.8
YE1107	Al Makhadir	4.2	YE1408	Mukayras	4.2	YE1607	Al Maslub	3.8
YE1108	Hobeish	3.7	YE1409	Al Bayda City	4.2	YE1608	Al Ghayl	4.2
YE1109	Hazm Al Odayn	3.3	YE1410	Al Bayda	3.7	YE1609	Al Khalaq	4.3
YE1110	Far' Al Odayn	3.7	YE1411	As Sawadiyah	4.2	YE1610	Barat Al Anan	3.7
YE1111	Al Odayn	3.2	YE1412	Radman	4.2	YE1611	Rajuzah	2.8
YE1112	Jiblah	3.9	YE1413	Rada'	4.2	YE1612	Kharab Al Marashi	3.8
YE1113	Ba'dan	3.3	YE1414	Al Quraishyah	3.7	YE1701	Bakil Al MIr	3.3
YE1114	As Sabrah	3.6	YE1415	Wald Rabi'	4.7	YE1702	Harad	3.5
YE1115	As Saiyani	3.7	YE1416	Al Arsh	3.7	YE1703	Midi	3.6
YE1116	Dhi As Sufal	3.9	YE1417	Sahab	3.7	YE1704	Abs	4.6
YE1117	Mudhaykhirah	3.3	YE1418	Ar Ryashyyah	3.3	YE1705	Hayran	4.4
YE1118	Al Mashannah	4.2	YE1419	Ash Sharyah	4.2	YE1706	Mustaba	4.1
YE1119	Adh Dhihar	4.0	YE1420	Al Malajim	4.2	YE1707	Kushar	2.8
YE1120	lbb	3.6	YE1501	Mawiyah	4.3	YE1708	Al Jamimah	3.7
YE1201	Al Mahfad	2.9	YE1502	Shar'ab As Salam	4.0	YE1709	Kuhlan Ash Sharaf	3.7
YE1202	Mudiyah	3.3	YE1503	Shar'ab Ar Rawnah	4.4	YE1710	Aflah Ash Sham	3.7
YE1203	Jayshan	2.8	YE1504	Maqbanah	4.7	YE1711	Khayran Al Muharraq	4.5
YE1204	Lawdar	3.8	YE1505	Al Makha	3.8	YE1712	Aslam	4.6
YE1205	Sibah	2.8	YE1506	Dhubab	4.0	YE1713	Qalf Shammar	4.7
YE1206	Rassd	2.8	YE1507	Mawza'	4.2	YE1714	Aflah Al Yaman	4.8
YE1207	Sarar	2.8	YE1508	Jabal Habashi	3.8	YE1715	Al Mahabishah	4.7
YE1208	Al Wadi'	2.9	YE1509	Mashr'ah Wa Hadnan	3.8	YE1716	Al Miftah	4.2
YE1209	Ahwar	3.5	YE1510	Sabir Al Mawadim	3.7	YE1717	Al Maghrabah	3.7
YE1210	Zinjibar	2.0	YE1511	Al Misrakh	4.7	YE1718	Kuhlan Afar	4.2
YE1211	Khanfar	3.3	YE1512	Dimnat Khadir	4.1	YE1719	Sharas	4.2
YE1301	Old City	3.8	YE1513	As Silw	5.2	YE1720	Mabyan	5.3
YE1302	Shu'ub	3.8	YE1514	Ash Shamayatayn	5.0	YE1721	Ash Shahil	4.2
YE1303	Azaal	2.9	YE1515	Al Wazi'iyah	3.8	YE1722	Ku'aydinah	4.6
YE1304	As Safiyah	3.8	YE1516	Hayfan	4.2	YE1723	Wadrah	3.3
YE1305	As Sab'in	2.5	YE1517	Al Mudhaffar	3.5	YE1724	Bani Qays	5.5
YE1306	Al Wehdah	2.7	YE1518	Al Qahirah	3.7	YE1725	Ash shaghadirah	5.3
YE1307	At Tahrir	3.4	YE1519	Salah	3.5	YE1726	Najrah	3.7
YE1308	Ma'in	2.9	YE1520	At Ta'iziyah	4.6	YE1727	Bani Al Awam	3.7
YE1309	Ath Thawrah	2.2	YE1521	Al Ma'afer	3.1	YE1728	Hajjah City	3.8
YE1310	Bani Al Harith	3.9	YE1522	Al Mawasit	3.9	YE1729	Hajjah	5.1
YE1401	Nu'man	3.3	YE1523	Sami'	3.8	YE1730	Washhah	4.2

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P-Code	District	Score	P-Code	District	Score	P-Code	District	Score
YE1731	Qarah	3.3	YE1917	Ghavl Bawazir	2.1	YE2203	Monabbih	4.2
YE1801	Az Zuhrah	5.2	YE1918	Daw'an	1.9	YE2204	Ghamr	3.7
YE1802	Alluhavah	5.4	YE1919	Wadi Al Avn	1.5	YE2205	Razih	3.3
YE1803	Kamaran	6.0	YE1920	Rakhvah	1.5	YE2206	Shada'a	2.4
YE1804	As Salif	5.9	YE1921	Amd	1.4	YE2207	Adh Dhahir	4.2
YE1805	Al Munirah	4.5	YE1922	Ad Dulay'ah	1.9	YE2208	Haydan	2.8
YE1806	Al Qanawis	5.3	YE1923	Yab'uth	1.9	YE2209	Saqin	2.8
YE1807	Az Zaydiah	4.6	YE1924	Hajar	4.0	YE2210	Majz	3.7
YE1808	Al Mighlaf	4.6	YE1925	Brum Mayfah	2.9	YE2211	Sahar	3.8
YE1809	Ad Dohi	5.8	YE1926	Al Mukalla	1.6	YE2212	As Safra	3.8
YE1810	Bajil	4.7	YE1927	Al Mukalla City	3.2	YE2213	Al Hashwah	3.3
YE1811	Al Hujjaylah	5.2	YE1928	Haridah	1.8	YE2214	Kitaf wa Al Boqa'	3.3
YE1812	Bura'	5.2	YE2001	Al Hada	4.2	YE2215	Sa'dah	4.9
YE1813	Al Marawai'ah	4.9	YE2002	Jahran	3.8	YE2301	Hamdan	4.0
YE1814	Ad Durayhimi	4.8	YE2003	Jabal Ash Sharq	3.8	YE2302	Arhab	3.8
YE1815	As Sukhanah	5.7	YE2004	Maghrib Ans	4.7	YE2303	Nihm	4.2
YE1816	Al Mansuriyah	5.9	YE2005	Otmah	3.8	YE2304	Bani Hushaysh	4.2
YE1817	Bayt Al Faqih	4.3	YE2006	Wusab Al Ali	4.3	YE2305	Sanhan wa Bani Bahlul	3.4
YE1818	Jabal Ras	5.6	YE2007	Wusab As Safil	3.8	YE2306	Bilad Ar Rus	4.2
YE1819	Hays	4.4	YE2008	Dhamar City	4.1	YE2307	Bani Matar	3.8
YE1820	Al Khukhah	4.5	YE2009	Mayfa'at Ans	4.2	YE2308	Al Haymah Ad Dakhiliyah	4.2
YE1821	Al Hawak	2.6	YE2010	Ans	4.2	YE2309	Al Haymah Al Kharijiyah	4.2
YE1822	Al Mina	4.1	YE2011	Dawran Anis	3.7	YE2310	Manakhah	3.8
YE1823	Al Hali	3.8	YE2012	Al Manar	4.7	YE2311	Sa'fan	4.2
YE1824	Zabid	4.7	YE2101	Dahr	1.4	YE2312	Khawlan	4.2
YE1825	Al Jarrahi	5.3	YE2102	At Talh	1.9	YE2313	At Tyal	4.2
YE1826	At Tuhayta	3.7	YE2103	Jardan	2.4	YE2314	Bani Dabyan	4.2
YE1901	Rumah	1.5	YE2104	Arma'a	1.9	YE2315	Al Hissn	4.2
YE1902	Thamud	2.4	YE2105	Osaylan	2.5	YE2316	Jihanah	4.2
YE1903	Al Qaff	1.5	YE2106	Ayn	2.4	YE2401	Dar Sa'd	3.8
YE1904	Zamakh wa Manwokh	1.5	YE2107	Bayhan	3.3	YE2402	Ash Shaykh Othman	3.8
YE1905	Hajar As Say'ar	1.4	YE2108	Markhah Al Olya	2.4	YE2403	Al Mansurah	3.5
YE1906	Al Abr	2.8	YE2109	Markhah Al Sufla	2.4	YE2404	Al Burayqah	3.4
YE1907	Al Qatn	1.9	YE2110	Nisab	2.4	YE2405	At Tawahi	3.1
YE1908	Shibam	1.9	YE2111	Hatib	2.4	YE2406	Al Mu'alla	3.6
YE1909	Sah	1.9	YE2112	As Sa'id	2.4	YE2407	Kritar - Sirah	3.4
YE1910	Sayun	1.9	YE2113	Ataq	2.8	YE2408	Khur Maksar	3.5
YE1911	Tarim	1.9	YE2114	Habban	2.4	YE2501	Al Had	3.3
YE1912	As Sawm	1.8	YE2115	Ar Rawdah	1.5	YE2502	Yafi'	2.8
YE1913	Ar Raydah wa Qussay'ar	2.0	YE2116	Mayfa'ah	3.7	YE2503	Al Maflahi	2.4
YE1914	Ad Dis	2.0	YE2117	Radum	2.9	YE2504	Yahr	3.3
YE1915	Ash Shihr	2.8	YE2201	Baqim	4.7	YE2505	Habil Jabr	2.8
YE1916	Ghayl bin Yamin	1.9	YE2202	Qatabir	4.2	YE2506	Halmin	3.3

P-Code	District	Score	P-Code	District	Score
YE2507	Radfan	2.7	YE2903	Al Ashah	3.7
YE2508	Al Malah	3.9	YE2904	Qaflat Odhar	3.7
YE2509	Al Musaymir	4.5	YE2905	Shaharah	3.7
YE2510	Al Qubaytah	4.2	YE2906	Al Madan	4.2
YE2511	Tur Al Bahah	4.0	YE2907	Suwayr	3.8
YE2512	Al Maqatirah	2.8	YE2908	Dhulaymat Habur	4.2
YE2513	Al Madaribah Wa Al Aarah	5.2	YE2909	Dhibain	4.2
YE2514	Al Hawtah	4.4	YE2910	Kharif	3.7
YE2515	Tuban	4.1	YE2911	Raydah	3.7
YE2601	Majzar	3.6	YE2912	Jabal Eyal Yazid	4.3
YE2602	Raghwan	4.0	YE2913	As Sudah	4.3
YE2603	Madghal Al Jid'an	3.9	YE2914	As Sawd	4.3
YE2604	Harib Al Qaramish	4.0	YE2915	Amran	4.2
YE2605	Bidbadah	3.7	YE2916	Maswar	4.3
YE2606	Sirwah	3.6	YE2917	Thula	2.9
YE2607	Al Jubah	4.2	YE2918	Eyal Surayh	3.3
YE2608	Rahabah	2.1	YE2919	Khamir	3.7
YE2609	Harib	3.3	YE2920	Bani Surim	4.2
YE2610	Mahliyah	3.3	YE3001	Juban	4.1
YE2611	Al Abdiyah	2.8	YE3002	Damt	4.4
YE2612	Ma'rib City	3.9	YE3003	Qa'tabah	4.2
YE2613	Ma'rib	3.5	YE3004	Ash Shu'ayb	4.5
YE2614	Jabal Murad	2.8	YE3005	Al Hasayn	2.5
YE2701	Shibam Kawkabin	3.2	YE3006	Ad Dali'	3.7
YE2702	At Tawilah	4.2	YE3007	Jahaf	3.3
YE2703	Ar Rujum	5.1	YE3008	Al Azariq	4.2
YE2704	Al Khabt	4.2	YE3009	Al Husha	4.6
YE2705	Melhan	4.8	YE3101	Bilad Atta'am	3.7
YE2706	Hufash	5.5	YE3102	As Salafiyyah	3.3
YE2707	Bani Sa'd	4.2	YE3103	Al Jabin	3.7
YE2708	Al Mahwit City	3.7	YE3104	Mazhar	3.3
YE2709	Al Mahwit	5.3	YE3105	Kusmah	3.3
YE2801	Shahin	1.4	YE3106	Al Ja'fariyyah	2.8
YE2802	Hat	2.4	YE3201	Hadibu	2.0
YE2803	Hawf	1.4	YE3202	Qalansiyah wa Abd Al Kuri	2.0
YE2804	Al Ghaydhah	3.0			
YE2805	Man'ar	1.5			
YE2806	Al Masilah	1.5			
YE2807	Sayhut	2.6			
YE2808	Qishn	3.5			
YE2809	Haswin	3.1			
YE2901	Harf Sufyan	3.7			

3.8

YE2902 Huth