

# Measuring WASH Humanitarian Conditions in Somalia

## Method Note for the Calculation of WASH PIN and Severity

This document outlines the methodology underpinning the calculation of the severity of WASH humanitarian conditions (SEV) and the number of People in Need (PIN) of WASH interventions for the WASH section of the 2020 Humanitarian Needs Overview in Somalia. In addition, the document explains how to analyse the main barriers in accessing WASH services (Annex 1).

### Background

Somalia continues to face a protracted humanitarian crisis. According to the 2019 HNO, conflict and natural hazards have left 4.2 million people, a third of the population, are in need of humanitarian assistance and protection. Of these, 2.9 million require WASH assistance. Access to improved water sources remains below 40% nationally, while in drought affected regions, this figure is even lower and is a leading driver of conflict and displacement. More than half of the population lack access to adequate sanitation and only third are able to practice hand washing with soap at critical moments. Such conditions contribute to risk of illnesses such as cholera and acute watery diarrhoea (AWD). Additionally, accessing WASH facilities is often a protection issue as in camp and site settlements, accessing facilities can place certain people at a higher risk of violence, in particular women, children, elderly and people with disabilities.

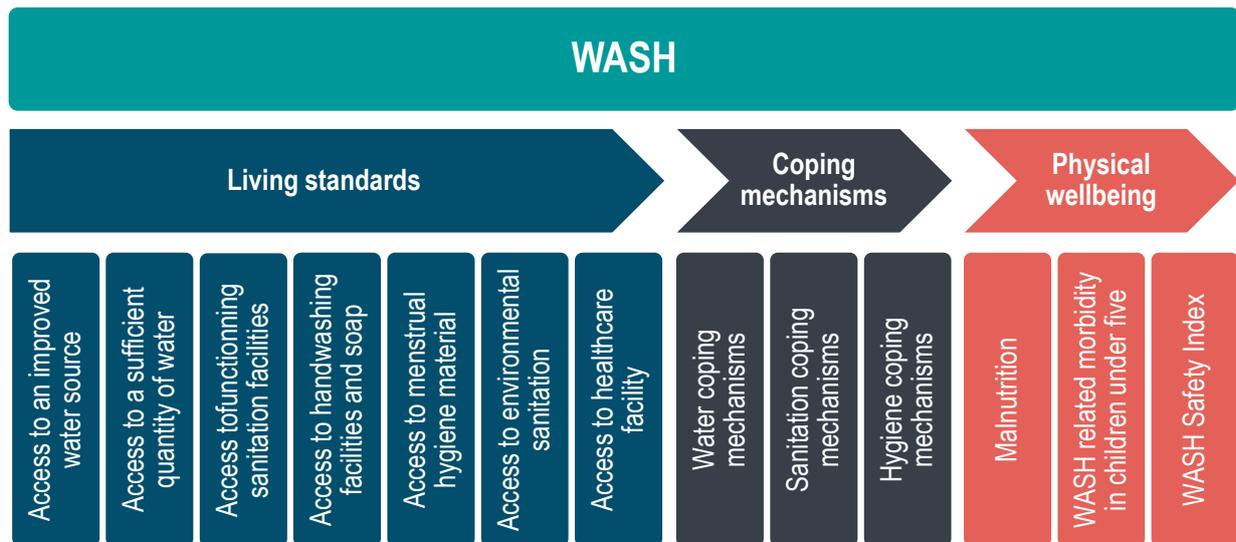
### Rationale

Humanitarian actors continue to face significant challenges in gathering and effectively using multi-sector data in a coordinated, timely, and comprehensive manner. As a result, emergencies are often characterised by critical information gaps that hinder strategic planning and the prioritization of the response. To address this issue, the WASH Cluster, along with other UNICEF-led clusters and AoRs, are partnering with REACH to produce accurate analysis and enhance the quality of their strategic documents, such as HNOs.

The document is an adaptation from a guidance note produced by the Global WASH Cluster (GWC), in partnership with REACH and with the help of Okular Analytics.

### Analysis Framework

The methodology paper is conceived in alignment with the Joint Inter-Sectoral Analysis Framework (JIAF) pillars, whose key components measure the severity of humanitarian conditions for WASH: living standards, coping mechanisms, and physical wellbeing. Each of these three pillars are broken down into sub-pillars, such as access to improved water sources, coping mechanisms for sanitation, or prevalence of malnutrition, etc., as outlined in the infographic below. Relevant indicators (see Annex 2) are then developed to measure the severity of each sub-pillars.



## Analysis Process

The calculation of PIN and Severity is conducted through the following steps:

- 1) Indicator values are classified along a five-point scale to determine sub-pillars severity
- 2) Sub-pillar severities are aggregated by their median to determine the pillar severities.
- 3) Pillar severities are aggregated using by taking their median to determine the overall WASH Humanitarian Condition score.
- 4) WASH Humanitarian Condition scores are classified using the “Rule of 20%” to determine the WASH Severity Phase for each geographical area (district, nation) and affected group (host communities, IDPs, combined).
- 5) WASH Humanitarian Condition scores of 3-5 are proportioned using survey weights to determine the number of People in Need (PIN) for each geographical area (district, nation) and affected group (host communities, IDPs, combined).
- 6) For districts where data is scarce or unavailable projections are made based on a values from adjacent districts and adjusted by expert opinion.

## Data Sources

The main data source used to measure the WASH Humanitarian Condition is the nationwide Somalia Joint Multi-Sector Assessment (JMSNA, methodology and TOR available [here](#)), conducted from June to September 2019. This household-level assessment is statistically representative for accessible areas in 54 districts, out of a total of 70. The assessment covers both IDP and host community population groups. Other data sources are also used, especially for data on nutrition, food security, morbidity, etc. Data sources used for each indicator are reported in the indicator tables throughout the document.

## Limitations

The methodology outlined in this document implies several limitations that is important to keep in mind when it is used for humanitarian planning purposes:

- Humanitarian Condition score and PIN calculation are based on secondary data sources and are therefore subject to the same limitations of the assessments that collected those data
- By definition, a model (such as the one outlined in this document) that aims at reducing the complexity of reality in order to facilitate decision making is not as accurate as the reality itself
- The different thresholds used for the severity classification are based either on global/national standards, or on expert judgment (when standards available and relevant to the context), which by definition implies some level of bias depending on expert personal experience
- For districts where data is scarce or unavailable, please refer to Section 6, which explains the limitations for the projections and/or adjustments that are carried out for those areas.

## 1. Calculation of Sub-pillar Severity

### 1.1. Living Standards

#### 1.1.1. Access to an improved water source

Water sources (type and distance) refer to the accessibility, availability and quality of the main source used by households for drinking, cooking, personal hygiene and other domestic uses, as per Sphere standards, and it is measured through the following indicators:

Indicators	Source
% Households reporting accessing an improved primary water source for drinking water in the past 30 days	JMCNA and FNSAU
% Households reporting accessing an improved primary water source for domestic water in the past 30 days (cooking, bathing, not agriculture or livestock)	JMCNA and FNSAU
% Households reporting presence of improved water source reachable in less than 30 minutes of travel total (by walking)	JMCNA

**1) What was your primary source of drinking water in the last 30 days? Select ONE:**

- Water Kiosk  
  Vendors or shop  
  Piped System  
  Protected Well with hand Pump  
 Protected Well w/o hand pump  
  Unprotected Well  
  Berkad  
  River  
  Water tank and tap  
 Water Trucking  
  Distribution Point  
  Borehole with submersible pump  
  If other specify

**2) How long by foot does it take to reach your primary water source from your home? Select ONE:**

- Less than 15 mins  
  15-30 mins  
  30 mins-1h  
  1-3h  
  3+h

**Analysis and recoding.** The severity of drinking water conditions is measured using a 5-point scale in alignment with the JIAF. The severity scale is an adaptation of the [JMP](#) recalibrated to measure SPHERE standards. Answers should be recoded, so each household receives a score from 1 to 5 for this variable.

1	2	3	4	5
Water comes from an improved water and collection time is not more than 15 min for a roundtrip, including queuing	Water comes from an improved water source, provided collection time is not more than 30 min for a roundtrip, including queuing	Water comes from an improved source for which collection time exceeds 30 minutes for a roundtrip, including queuing	Water comes from an unimproved water source	Water comes directly from rivers, lakes, ponds, etc.

Improved drinking water sources are those that have the potential to deliver safe water by the nature of their design and construction. The table below outlines the water source classification used in the framework of this exercise:

Improved water source	Unimproved water source	Surface water
Piped system	Unprotected well	River, pond or dam
Boreholes	Water trucking	
Protected wells	Water kiosks	
Water tank and tap	Vendors or shops	
	Berkad	

### 1.1.2. Access to a sufficient quantity of water

The measurement of the water quantity available at the household level allow to assess if SPHERE standards are achieved. This sub-pillar is based on subjective measure through the following indicators:

Indicators	Source
% Households reporting having sufficient drinking water for all members in the past 30 days	JMCNA
% Households reporting having sufficient water for domestic use (cooking, bathing, and cleaning, not agriculture or livestock) in the past 30 days	JMCNA
% Households reporting having no storage tanks or jerry cans, or sharing jerry-cans, or re-filling jerry-cans more than 3 times/day	JMCNA

<p><b>3) Did you have enough drinking water for all household members in the last 30 days?</b>  <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><b>4) Did you have enough water for cooking, bathing, and cleaning in the last 30 days?</b>  <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><b>5) How do you store your water? Select MULTIPLE:</b>  <input type="checkbox"/> Jerry Cans <input type="checkbox"/> Water tank <input type="checkbox"/> Water gallon <input type="checkbox"/> Bucket with lid <input type="checkbox"/> Bucket with no lid <input type="checkbox"/> Plastic bottle</p> <p><b>6) How often do you refill the jerrycans in a day?</b>  <input type="checkbox"/> Once <input type="checkbox"/> Twice <input type="checkbox"/> Thrice <input type="checkbox"/> More than 3 times</p>
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**Analysis and recoding.** The severity is measured using a 5-point scale in alignment with the JIAF and based on SPHERE standards. Answers are recoded, so each household receives a score from 1 to 5 for this variable.

1	2	3	4	5
<p>Enough water for drinking AND domestic uses (cooking, bathing, and cleaning, not agriculture or livestock)</p> <p>PLUS</p> <p>The HH has storage tanks or jerry cans, or sharing jerry-cans, AND it does not re-fill jerry-cans more than 3 times/day</p> <p>OR</p> <p>The HH has a connection to the</p>	<p>Enough water for drinking AND domestic uses (cooking, bathing, and cleaning, not agriculture or livestock)</p> <p>BUT</p> <p>The HH does not have storage tanks or jerry cans, or sharing jerry-cans, OR it does re-fill jerry-cans more than 3 times/day</p>	<p>EITHER enough water for drinking OR for domestic uses</p> <p>PLUS</p> <p>The HH has storage tanks or jerry cans, or sharing jerry-cans, AND it does not re-fill jerry-cans more than 3 times/day</p>	<p>EITHER enough water for drinking OR for domestic uses</p> <p>BUT</p> <p>The HH does not have storage tanks or jerry cans, or sharing jerry-cans, OR it does re-fill jerry-cans more than 3 times/day</p>	<p>Not enough water for drinking AND domestic uses</p>

water piped system (see question 1.1.1)				
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### 1.1.3. Access to adequate, appropriate and functional sanitation facilities

Sanitation services refer to the management of excreta. This sub-pillar is measured through the following indicators:

Indicators	Source
% Households reporting use of sanitation facilities, by type of facility	JMCNA
% Households reporting using personal latrines	JMCNA
% Households reporting sharing latrines with more than 3 households	JMCNA

<p><b>7) Does your household have access to a latrine? Select ONE:</b>  <input type="checkbox"/> Yes - personal latrine   <input type="checkbox"/> Yes - shared latrine   <input type="checkbox"/> No latrine</p> <p><b>8) Do you share the latrine with more than 2 other households (not including your own)? Select ONE:</b>  <input type="checkbox"/> Yes   <input type="checkbox"/> No</p> <p><b>9) What type of latrine do you mainly use? Select ONE:</b>  <input type="checkbox"/> Flush latrine to the open   <input type="checkbox"/> Flush latrine to a tank/sewer system/pit  <input type="checkbox"/> Pit latrine covered/with slab   <input type="checkbox"/> Pit latrine open/without slab   <input type="checkbox"/> If other specify</p>
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**Analysis & recoding.** The severity classification table below allows to categorize the severity of each HH based on the type of latrine used (adapted from SPHERE and JMP). Answers are recoded, so each household receives a score from 1 to 5 for this variable.

1	2	3	4	5
Access to improved sanitation facilities shared with less than two HHs	Access to improved sanitation facilities, shared with two or more HHs	Access to unimproved sanitation facilities shared with less than two HHs	Access to unimproved sanitation facilities shared with two or more HHs	No access to latrine, or disposal of human faeces in open spaces or with solid waste

Improved sanitation facilities are those designed to hygienically separate excreta from human contact. A reference table for categorization of sanitation facilities (latrine/toilet) is proposed below and will be adjusted to the national context:

Improved sanitation facility	Unimproved sanitation facility	Open defecation
Flush latrine to a tank/sewer system/pit Pit latrine covered/with slab	Flush latrine to the open Pit latrine open/without slab	Open space

### 1.1.4. Access to functional handwashing facilities and soap

This refers to the practices that help maintain health and prevent spread of disease including handwashing, menstrual hygiene management and food hygiene. Due to space constraints in multi-sector needs assessments, the hygiene question block focuses on handwashing only. Handwashing facilities may be fixed or mobile and include a sink with tap water, buckets with taps, tippy-taps. Soap includes bar soap, liquid soap, powder detergent, soapy water, as well as ash, soil, sand or other handwashing agents. This sub-pillar is measured through the following indicators:

Indicators	Source
% Households reporting having soap at home or having daily access to soap	JMCNA
% Households reporting availability of water and soap at latrines	JMCNA

**10) Do you have soap in your household or daily access to soap?** Select ONE:  
 Yes  No

**10) Do latrines used by your household have functional facilities for handwashing (water and soap)??** Select ONE:  
 Yes  No

**Analysis & recoding.** The severity classification table below allows to categorize the severity of each HH based on access to hygiene (adapted from SPHERE and JMP). Answers are recoded, so each household receives a score of either 1, 3 or 5 for this variable.

1	3	5
Soap is available at home AND latrines used by HH have functional facilities for handwashing	EITHER soap is available at home OR latrines used by HH have functional facilities for handwashing	Soap is not available at home AND latrines used by HH do not have functional facilities for handwashing

### 1.1.5. Access to menstrual hygiene material

Access to menstrual materials means that women and girls have access to menstrual materials they are accustomed to using, in sufficient quantities and of an acceptable quality. This sub-pillar is measured through the following indicators:

Indicators	Source
% Households reporting having menstruation materials at home or access to hygienic menstruation materials	JMCNA

**11) Do women in the household have access to hygienic menstruation materials?** Select ONE:  
 Yes  No

**Analysis & recoding.** The severity classification table below allows to categorize the severity of each HH based on access to menstrual hygiene material. Answers are recoded, so each household receives a score of either 2 or 4 for this variable.

2	4
Women in the household have access to hygienic menstruation materials	Women in the household have no access to hygienic menstruation materials

### 1.1.6. Access to environmental sanitation

This refers to the basic environmental conditions related to disease transmission surrounding people's accommodations including faecal matter, decaying organic matter, and stagnate water. This sub-pillar is measured through the following indicator:

Indicators	Source
% Households facing environmental sanitation problems within 10m of dwelling	JMCNA

**12) What environmental sanitation problems does the household face? (direct observation within 10m of dwelling) Select MULTIPLE:**

- Faecal matter    Stagnant water    Solid household waste matter  
 Decaying organic matter such as dead animals    Rodents    None

**Analysis and recoding.** The severity of environmental sanitation conditions is measured using a 5-point scale in alignment with the JIAF. Answers are recoded, so each household receives a score from 1 to 5 for this variable.

1	2	3	4	5
No environmental sanitation problems visible	At least one sanitation problems visible	At least two sanitation problems visible	At least three sanitation problems visible	At least four sanitation problems visible

### 1.1.7. Availability of healthcare facilities

This refers to the ability of households to receive medical assistance and it is measured through a proxy indicator focused on availability of healthcare facilities. More specifically, the indicator looks at the time required to reach the nearest healthcare facility.<sup>1</sup> This sub-pillar is measured through the following indicator:

Indicators	Source
% Households reporting ability of members able to access required treatment in response to sickness, health issue by type of facility visited / healthcare sought	JMCNA

**13) How long does it take you to reach the nearest healthcare facility? Select ONE:**

- Less than 15 mins    15-30 mins    30 mins-1h    1-3h    3+h

**Analysis and recoding.** The severity of access to health facilities is measured using a 5-point scale in alignment with the JIAF. Answers are recoded, so each household receives a score from 1 to 5 for this variable.

1	2	3	4	5
Distance to nearest healthcare facility is less than 15 minutes.	Distance to nearest healthcare facility is 15 to 30 minutes.	Distance to nearest healthcare facility is 30 minutes to 1 hour.	Distance to nearest healthcare facility is 1 to 3 hours.	Distance to nearest healthcare facility is over 3 hours.

## 1.2. Coping mechanisms for lack of access to WASH services

### 1.2.1. Water Coping Sub-Index

This refers to the different ways the affected population cope with the lack of access to water. This sub-pillar is measured through the following indicators:

<sup>1</sup> For this indicator only hospitals and clinics are considered healthcare facilities. Traditional mid-wives, traditional healers, pharmacies, shops selling medication, and facilities listed as other were excluded.

Indicators	Source
% Households using negative coping strategies to access water in the past 1 month/30 days	JMCNA

**14) In the past 30 days, what did you do if you did not have enough water? Select MULTIPLE:**  
 Had enough water  Reduce domestic water consumption  Rely on seasonal water sources  
 Send children to fetch water  Reduce drinking water consumption  Adults reduce consumption so that minors can drink  
 Drink unsafe water  Borrow or share materials or borrow cash  Adults work extra shifts/jobs  Spend more time travelling/waiting (secure areas)  
 Rely on humanitarian assistance  Use money otherwise used for other purchases  
 Sell assets otherwise used for other purposes  Travel/Move to insecure or dangerous areas  
 Adult members beg  Minors work  Minors beg  Sexual, economic exploitation to access humanitarian assistance

**Analysis and recoding.** The different coping strategies are attributed a score depending on the degree of harmfulness, as shown in the table below.

Coping strategies	Score
Rely on seasonal water source	1
Borrow or share materials or borrow cash	1
Adults work extra shifts/jobs	1
Spend more time travelling/waiting (secure areas)	1
Use money otherwise used for other purchases	1
Reduce domestic water consumption	2
Send children to fetch water	2
Adults reduce consumption so that minors can drink	2
Drink unsafe water	2
Rely on humanitarian assistance	2
Sell assets otherwise used for other purposes	2
Adult members beg	2
Minors work	2
Reduce drinking water consumption	3
Travel/Move to insecure or dangerous areas	3
Minors beg	3
Sexual, economic exploitation to access humanitarian assistance	3

For each household, the Water Coping Sub-Index is calculated using:

$$\text{Water Coping Sub-Index} = \text{SUM (scores)}$$

The maximum Water Coping Sub-Index score obtainable for a HH is 30. The following cut-off points are used for the severity classification:

1	2	3	4	5
0-1	2-4	5-8	9-13	≥14

### 1.2.2. Sanitation Coping Sub-Index

This refers to the different ways the affected population cope with the lack of access to sanitation facilities. This sub-pillar is measured through the following indicators:

Indicators	Source
% Households using negative coping strategies to access sanitation facilities in the past 1 month/30 days	JMCNA

**15) In the past 30 days, what did you do if you could not access sanitation facilities? Select MULTIPLE:**

- Had access to sanitation   
  Share facilities with other households   
  Use facilities which are unhygienic/not cleaned   
  Only use facilities at night or non-segregated latrines   
  Open defaecation   
  Spend more time travelling/waiting (secure areas)   
  Rely on humanitarian assistance   
  Use money otherwise used for other purchases   
  Travel/Move to insecure or dangerous areas   
  Sexual, economic exploitation to access humanitarian assistance

**Analysis and recoding.** The different coping strategies are attributed a score depending on the degree of harmfulness, as shown in the table below.

Coping strategies	Score
Share facilities with other households	1
Use facilities which are unhygienic/not cleaned	1
Spend more time travelling/waiting (secure areas)	1
Use money otherwise used for other purchases	1
Only use facilities at night or non-segregated latrines	2
Rely on humanitarian assistance	2
Open defaecation	3
Travel/Move to insecure or dangerous areas	3
Sexual, economic exploitation to access humanitarian assistance	3

For each household, the final Sanitation Coping Sub-Index is calculated using:

$$\text{Sanitation Coping Sub-Index} = \text{SUM (scores)}$$

The maximum HH WASH Coping Index score obtainable for a HH is 17. The following cut-off points are used for the severity classification:

1	2	3	4	5
0-1	2-4	5-8	9-13	≥14

### 1.2.3. Hygiene coping strategies

This refers to the different ways the affected population cope with the lack of access to hygienic or menstrual materials. This pillar is measured through the following indicators:

Indicators	Source
% Households using negative coping strategies to access hygienic or menstrual materials in the past 1 month/30 days	JMCNA

**16) In the past 30 days, what did you do if you did not have access to soap or hygienic menstrual materials? Select MULTIPLE:**

- Had access to soap or menstrual hygienic materials   
 Wash clothes with soap substitutes   
 Wash hands with soap substitutes   
 Wash menstrual materials with soap substitutes  
 Wash hands or menstrual materials less frequently   
 Do not clean/re-use menstruation materials   
 Do not wash hands with soap   
 Use latrines for bathing purposes   
 Do not use menstruation materials   
 Do not wash hands at all   
 Borrow or share materials or borrow cash  
 Adults work extra shifts/jobs   
 Spend more time travelling/waiting (secure areas)   
 Rely on humanitarian assistance   
 Use money otherwise used for other purchases   
 Sell assets otherwise used for other purposes   
 Travel/Move to insecure or dangerous areas   
 Adult members beg   
 Minors work   
 Minors beg   
 Sexual, economic exploitation to access humanitarian assistance

**Analysis and recoding.** The different coping strategies are attributed a score depending on the degree of harmfulness, as shown in the table below.

Coping strategies	Score
Wash clothes, hands, and/or menstrual materials with soap substitutes	1
Borrow or share materials or borrow cash	1
Adults work extra shifts/jobs	1
Spend more time travelling/waiting (secure areas)	1
Use money otherwise used for other purchases	1
Wash hands or menstrual materials less frequently	2

Do not clean/re-use menstruation materials	2
Do not wash hands with soap	2
Use latrines for bathing purposes	2
Rely on humanitarian assistance	2
Sell assets otherwise used for other purposes	2
Adult members beg	2
Minors work	2
Do not use menstruation materials	3
Do not wash hands at all	3
Travel/Move to insecure or dangerous areas	3
Minors beg	3
Sexual, economic exploitation to access humanitarian assistance	3

For each household, the Hygiene Coping Sub-Index is calculated using:

$$\text{Hygiene Coping Sub-Index} = \text{SUM (scores)}$$

The maximum Hygiene Coping Sub-Index score obtainable for a HH is 36. The following cut-off points are used for the severity classification:

1	2	3	4	5
0-1	2-4	5-8	9-13	≥14

### 1.3. Physical Wellbeing

#### 1.3.1. Malnutrition

This sub-pillar refers to the prevalence of global acute malnutrition in the area where the household lives. This pillar is measured through the following indicator:

Indicators	Source
% of HHs living in areas with high prevalence of GAM	Nutrition cluster
% Households reporting health issues or illnesses for at least one member in the past 3 months by type of issue/illness	JMCNA

**17) The indicator is measured through a compilation of several SMART survey led by the nutrition cluster.**

**18) Have any children (less than 5 years old) in the household suffered from the following illnesses or complications in the past 3 months/90 days? Select MULTIPLE:**

- Malaria  
 Fever  
 Acute Watery Diarrhoea (3 or more liquid stools)  
 Respiratory problems  
 Malnutrition (diagnosed by health or nutrition centre)  
 Other  
 Don't know

None

**Analysis and recoding.** The severity of malnutrition is measured using a 5-point scale in alignment with the JIAF. The malnutrition indicator is subdivided at the district level between livelihood zones. It will be aggregated to the district level to maintain a standard level of analysis across indicators. Each household receives a score from 1 to 5 for this variable depending on the level of malnutrition of the district it lives in.

	1	2	3	4	5
The household has report under-5 malnutrition in the past 90 days	The household lives in an area where prevalence of GAM is between 0 and 4.9%	The household lives in an area where prevalence of GAM is between 5 and 9.9%	The household lives in an area where prevalence of GAM is between 10 and 14.9%	The household lives in an area where prevalence of GAM is between 15 and 29.9%	The household lives in an area where prevalence of GAM is more than 30%
The household has NOT report under-5 malnutrition in the past 90 days	The household lives in an area where prevalence of GAM is between 0 and 9.9%	The household lives in an area where prevalence of GAM is between 10 and 14.9%	The household lives in an area where prevalence of GAM is between 15 and 29.9%	The household lives in an area where prevalence of GAM is between more than 30%	

### 1.3.2. Self-reported WASH-related morbidity in children under five

This sub-pillar refers to the prevalence of health issues among household members. WASH related diseases that are considered include malaria, fever, and AWD. The level of morbidity is measured through the following indicators:

Indicators	Source
% Households reporting health issues or illnesses for at least one member in the past 3 months by type of issue/illness	JMCNA

**19) Have any children (less than 5 years old) in the household suffered from the following illnesses or complications in the past 3 months/90 days? Select MULTIPLE:**

- Malaria  
 Fever  
 Acute Watery Diarrhoea (3 or more liquid stools)  
 Respiratory problems  
 Malnutrition (diagnosed by health or nutrition centre)  
 Other  
 Don't know  
 None

**Analysis and recoding.** The severity of morbidity is measured using a 5-point scale in alignment with the JIAF. Answers should be recoded, so each household receives a score from 1 to 5 for this variable based on the sum of reported incident of malaria, fever, and/or AWD.

1	3	5
No U5 in the HH suffered from water related diseases in the past 90 days.	U5 HH member suffered from at least one water related diseases in the last past 90 days.	HH members suffered from at least 2 water related diseases in the past 90 days.

### 1.3.3. WASH Safety Index

This sub-pillar refers to the safety of using WASH facilities in the area where the household lives. This pillar is measured through an index score based on the following indicators:

Indicators	Source
% Households reporting use of latrines with walls and locks on inside of door	JMCNA
% Households reporting use of latrines with internal source of light	JMCNA
% Households reporting use of gender-segregated latrines	JMCNA
% Households reporting presence of dignified latrines reachable in less than 15 minutes of travel total	JMCNA
% Households reporting presence of improved water source reachable in less than 30 minutes of travel total (by walking or available means of transport)	JMCNA
% Households reporting being consulted, or able to participate in, the design, location, and delivery of drinking water and water sources	JMCNA
% Households reporting being consulted, or able to participate in, the design, location, and delivery of drinking water and water sources	JMCNA
% Households reporting protection concerns among top 3 main concerns in procuring water	JMCNA
% Households reporting protection concerns among top 3 main concerns in accessing adequate sanitation	JMCNA
% Households reporting protection concerns among 3 main concerns in procuring soap, and/or hygienic menstruation materials	JMCNA

**20) Are latrines used by your household lockable from the inside?** Select ONE:  
 Yes  No

**21) Do latrines used by your household have lighting at night?** Select ONE:  
 Yes  No

**22) Are latrines used by your household separated by gender?** Select ONE:  
 Yes  No

**23) How long by foot does it take to reach the nearest latrine you use from your home?** Select ONE:  
 Less than 15 mins  15-30 mins  30 mins-1h  1-3h  3+h

**24) How long by foot does it take to reach your primary water source from your home?** Select ONE:  
 Less than 15 mins  15-30 mins  30 mins-1h  1-3h  3+h

**25) Has your household been consulted, or able to participate in the design, location, delivery of drinking water or water sources?** Select ONE:  
 Yes  No  Don't know

**26) Has your household been consulted, or able to participate in the design, location, delivery of sanitation facilities?** Select ONE:  
 Yes  No  Don't know

**27) Do you believe that water sources and sanitation facilities are well developed and sustainable?** Select ONE:  
 Yes  No  Don't know

**28) What are the 3 main concerns you have in accessing drinking water, or water for cooking, cleaning, bathing?** A. First concern; B. Second concern; C. Third concern. A.B.C. Select ONE:  
 Availability: (Irregular supply, Not enough water at source)  Capacity: (Not enough jerry-cans, containers, storage capacity)  Quality: (Poor water quality, Functionality of water source)  
 Access: (Distance to source (>500m, or >7 minutes walking)  Excessive waiting time at source (>30 minutes)  Insecurity while travelling to source  Insecurity at water source

Prohibitive cost  None  Other

**29) What are the 3 main concerns you have in accessing latrines?** A. First concern; B. Second concern; C. Third concern. A.B.C. Select ONE:

Access: Distance to facility (>50m)  Excessive waiting time at facility (>30 minutes)  
 Insecurity while travelling to latrines  Insecurity at latrines  Not accessible for disabled persons  
 No access for minority groups/clans  Quality  No gender segregation  No walls or internal light  
 No lock on inside of door  Not cleaned or maintained  Facilities are full  
 Facilities are crowded  None  Other

**30) What are the 3 main concerns you have in accessing handwashing facilities or hygienic menstruation materials?** A. First concern; B. Second concern; C. Third concern A.B.C. Select ONE:

Not enough water or no washbasins  No soap  Difficulty in obtaining soap  Difficulty in obtaining menstruation materials  
 None  Other

**Analysis and recoding.** The WASH safety index is measured using a 5-point scale. Points are assigned to the responses to indicators as presented in the table below. Protection related concerns are written in red in the lists of concerns in Annex 2.

WASH safety issue	Weight
No latrines with walls and locks on inside of door	2
No latrines with internal source of light	1
No gender-segregated latrines	1
No dignified latrines reachable in less than 15 minutes of travel total	3
No improved water source reachable in less than 30 minutes of travel total	1
Not being consulted, or able to participate in, the design, location, and delivery of drinking water and water sources	1
Not being consulted, or able to participate in, the design, location, and delivery of sanitation facilities?	2
Does not believe that water sources and sanitation facilities are well developed and sustainable	1
Protection related concern reported as primary concern in procuring water	3
Protection related concern reported as secondary concern in procuring water	2
Protection related concern reported as tertiary concern in procuring water	1
Protection related concern reported as primary concern in accessing adequate sanitation	3
Protection related concern reported as secondary concern in accessing adequate sanitation	2
Protection related concern reported as tertiary concern in accessing adequate sanitation	1
Protection related concern reported as Difficulty in obtaining soap	2
Protection related concern reported as Difficulty in obtaining menstruation materials	2

For each household, the WASH Safety Index is calculated using:

$$\text{WASH Safety Index} = \text{SUM (scores)}$$

The maximum WASH Safety Index score obtainable for a HH is 30. The following cut-off points are used for the severity classification:

1	2	3	4	5
0-5	6-10	11-15	16-20	21-26

## 2. Aggregation of Pillar Severity

In Step 1, a household level severity score of 1-5 is calculated for each of the sub-pillars through the process detailed in the previous section. Sub-pillar scores are then aggregated, by their median value, into their respective pillars (Living Standards, Coping Mechanisms, and Physical Wellbeing).

## 3. Aggregation of WASH Humanitarian Condition Scores

A final WASH Humanitarian Condition score (the household level severity index) is calculated for each household by aggregating the three pillar scores by their median value.

## 4. Calculation of WASH Severity Phases

### 4.1. Calculate the percent of the population in each severity class

The WASH Humanitarian Condition scores are used to calculate the percentage of the population people in each severity class (1-5) for each geographical area (nation, districts) and affected group (combined, host, IDPs). For each of the severity classes, the sum of households in that phase is divide by the total number of households to equal the percent of the population. Because the household data is stratified by affected group, it is essential that this step is done separately for host and IDPs. For any geographical unit, the percentage of its combined population (host + IDPs) in a given severity class equals  $((\% \text{ IDP in Severity N}) * (\text{IDP population})) + ((\% \text{ Host in Severity N}) * (\text{Host population})) / (\text{Combined population})$ .

### 4.2. Classify geographic areas into WASH Severity Phases

Once the percentage of the population falling under each of the five severity classes is calculated (see previous step), a unique severity phase is calculated for each geographical area and affected group as a whole, using the 'Rule of 20%'. An area is classified according to a specific WASH Severity Phase when at least 20% of the population in the area are experiencing the conditions related to that severity class or more severe class. For instance, in the example below, for IDPs in Bossaso, 0% of the population has a humanitarian score of class 5. This is not enough to give the area/group a severity phase of 5. Moving left, we observe that 2% of the population has a humanitarian score of class 4. We sum the percentages falling under score 5 and 4 ( $0\% + 2\% = 2\%$ ) to see if the sum is equal to or greater than 20%. This is still not enough. Proceeding left, we add the percentages falling under score 5, 4 and 3 ( $0\% + 2\% + 30\% = 32\%$ ). The sum is greater than 20%, hence the severity of WASH conditions in for this geographical area/affected group level can be categorized as Severity Phase 3.

*Example of WASH Severity Phases by geographical area and affected groups*

District	Affected group	WASH Humanitarian conditions - Severity class					WASH Severity Phase
		1	2	3	4	5	
Bossaso	Host	24%	71%	5%	0%	0%	2
Bossaso	IDPs	5%	63%	30%	2%	0%	3
Bossaso	Combined	19%	69%	12%	1%	0%	2

Garbahaarrey	Host	0%	40%	44%	15%	0%	3
Garbahaarrey	IDPs	0%	5%	51%	44%	0%	4
Garbahaarrey	Combined	0%	10%	50%	40%	0%	4

## 5. Calculation of PIN and related figures

The percentage of the population falling under each of the five severity classes is also used to calculate the number and percent of the population affected, in need (PIN), and in urgent need (Urgent PIN). The process is done for the host, IDPs, and the combined populations.

- The sum of percentages in class 4 and 5 equals the Urgent PIN %.
- The sum of percentages in class 3, 4, and 5 equals the PIN %.
- The sum of percentages in class 2, 3, 4, and 5 equals the Affected %.

In the example below, IDPs in Bossaso have an Urgent PIN % of 2% based on the sum of the percentages for class 4 and 5 in the table above equal ( $2\% + 0\% = 2\%$ ). They have a PIN % of 32% based on the sum of the percentages for class 3, 4, and 5 in the table above equal ( $30\% + 2\% + 0\% = 32\%$ ). They have an Affected % of 95% based on the sum of the percentages for class 2, 3, 4, and 5 in the table above equal ( $63\% + 30\% + 2\% + 0\% = 95\%$ ).

*Example of WASH PIN% by geographical area and affected groups*

District	Affected group	Affected %	PIN %	Urgent PIN %
Bossaso	Host	76%	5%	0%
Bossaso	IDPs	95%	32%	2%
Bossaso	Combined	81%	13%	1%
Garbahaarrey	Host	100%	60%	15%
Garbahaarrey	IDPs	100%	95%	44%
Garbahaarrey	Combined	100%	90%	40%

These percentages are then multiplied by the total population of the respective affected group to determine the number of people falling into each class.

In the example below, IDPs in Bossaso have an Urgent PIN of 2,772 based on the IDP population multiplied by the Urgent PIN % ( $140,000 * 2\% = 2,772$ ). They have a PIN of 44,356 based on the IDP population multiplied by the PIN % ( $140,000 * 32\% = 44,356$ ). They have an Affected population of 133,069 based on the IDP population multiplied by the Affected % ( $140,000 * 95\% = 133,069$ ).<sup>2</sup>

<sup>2</sup> Note: the products presented here do not exactly match the equation as the percentages are rounded.

Example of WASH PIN by geographical area and affected groups

District	Affected group	Total Population	Affected	PIN	Urgent PIN
Bossaso	Host	327,020	247,475	14,731	0
Bossaso	IDPs	140,000	133,069	44,356	2,772
Bossaso	Combined	467,020	380,544	59,087	2,772
Garbahaarrey	Host	18,988	18,988	11,340	2,901
Garbahaarrey	IDPs	103,000	103,000	98,209	45,512
Garbahaarrey	Combined	121,988	121,988	109,549	48,413

## 6. Projections for Hard to Reach Districts

The method as outline above applies to areas where data is available to perform the analysis. However, for Somalia in 2019, only 54 of 74 districts were assessed. The remaining 20 are considered Hard to Reach (H2R) were enumerators were unable to travel to to conduct household surveys. Security was the leading barrier to access.

Projections are initially based on the averages from adjacent districts. In H2R districts were data is not available, the percentage of the population in each severity phase (Section 4.1) is calculated as the mean of the values from all adjacent district. Some districts only border other H2R districts, in this case an iterative approach is used, where those that do border accessible districts are calculated first and then those values are used in a second iteration to calculate for those that do not. Once all these values are determined, the rest of the method is followed as outlined above (Sections 4.2-5).

However, such initial projections do not account for H2R areas presumably having higher severity and need levels than accessible locations. Expert judgement is used to adjust for the H2R conditions. A panel of experts meets to consider the average values from neighbouring districts and then determine final results based on their insight of the areas.

## ANNEX 1: ANALYSIS OF THE BARRIERS TO WASH SERVICES

### Annex 1.1 Main barriers to access water.

This indicator measures the main challenges faced by households in meeting their water needs. The survey question assesses the main underlying factors contributing the most to the inability to meet basic water needs. This is a qualitative variable, indicating the frequency of issues and their type.

**Core indicator.** % Households reporting 3 main concerns in procuring water<sup>3</sup>

*What are the 3 main concerns you have in accessing latrines?*

- Availability: (Irregular supply, Not enough water at source)
- Capacity: (Not enough jerry-cans, containers, storage capacity)
- Quality: (Poor water quality, Functionality of water source)
- Access: (Distance to source (>500m, or >7 minutes walking))
- Excessive waiting time at source (>30 minutes)
- **Insecurity while travelling to source**
- **Insecurity at water source**
- Prohibitive cost
- None
- If other specify

**Analysis and recoding.** Barriers to access are analysed using a Borda count, single-winner election method based on multiple preferences provided by the respondents<sup>4</sup>.

1. Households are asked to select the first, second, and third most important barrier for them to access WASH services.
2. The first most important barrier is weighted as “3”, the second as “2”, the third as “1”, and all others as “0”.
3. Priority scores for each of barrier are calculated as the quotient of the sum of response values over the number of responses. This can be calculated at different geographical scales from district to national.
4. Priority scores range from “0” (never reported as one of the main barriers) to “3” reported as the most important barrier by every respondent).
5. The results are then displayed for ease of interpretation as a “heat map,” a table of color coded priority scores by barrier and geographical unit.<sup>5</sup>

<sup>3</sup> Protection related concerns noted by red text.

<sup>4</sup> UNICEF. 2018. [“Sector severity and priority IDP locations with DTM data: A UNICEF step-by-step guide for Child Protection, WASH and Education Cluster Coordinators and IMOs.”](#)

<sup>5</sup> Benini, A. 2011. [“Heat maps as tools to summarize priorities expressed in needs assessments.”](#) ACAPS.

## Annex 1.2 Main barriers to access sanitation facilities.

This indicator measures the main challenges faced by household in accessing sanitation facilities. It identifies the underlying factors contributing the most to the inability to access adequate sanitation facilities. This is a qualitative variable, indicating the frequency of issues and their type.

**Core indicator.** % Households reporting 3 main concerns in accessing adequate sanitation facilities<sup>6</sup>

*What are the 3 main concerns you have in accessing latrines?*

- Access: Distance to facility (>50m)
- Excessive waiting time at facility (>30 minutes)
- *Insecurity while travelling to latrines*
- *Insecurity at latrines*
- *Not accessible for disabled persons*
- *No access for minority groups/clans*
- Quality
- *No gender segregation*
- *No walls or internal light*
- *No lock on inside of door*
- *Not cleaned or maintained*
- *Facilities are full*
- *Facilities are crowded*
- None
- *If other specify*

**Analysis and recoding.** Barriers to access are analysed using a Borda count, single-winner election method based on multiple preferences provided by the respondents<sup>7</sup>.

1. Households are asked to select the first, second, and third most important barrier for them to access WASH services.
2. The first most important barrier is weighted as “3”, the second as “2”, the third as “1”, and all others as “0”.
3. Priority scores for each of barrier are calculated as the quotient of the sum of response values over the number of responses. This can be calculated at different geographical scales from district to national.
4. Priority scores range from “0” (never reported as one of the main barriers) to “3” reported as the most important barrier by every respondent).
5. The results are then displayed for ease of interpretation as a “heat map,” a table of color coded priority scores by barrier and geographical unit.<sup>8</sup>

<sup>6</sup> Protection related concerns noted by red text.

<sup>7</sup> UNICEF. 2018. [“Sector severity and priority IDP locations with DTM data: A UNICEF step-by-step guide for Child Protection, WASH and Education Cluster Coordinators and IMOs.”](#)

<sup>8</sup> Benini, A. 2011. [“Heat maps as tools to summarize priorities expressed in needs assessments.”](#) ACAPS.

## Annex 1.3 Main barriers to access hygiene facilities, menstrual materials, and soap.

This indicator measures the main challenges faced by household in hygiene facilities, menstrual materials, and soap. It identifies the underlying factors contributing the most to the inability to access adequate sanitation facilities. This is a qualitative variable, indicating the frequency of issues and their type.

**Core indicator.** % Households reporting 3 main concerns in procuring soap, and/or hygienic menstruation materials<sup>9</sup>

*What are the 3 main concerns you have in accessing handwashing facilities or hygienic menstruation materials?*

- Not enough water or no washbasins
- No soap
- Difficulty in obtaining soap
- Difficulty in obtaining menstruation materials
- Cost
- No functioning markets
- *Insecurity travelling to, or at markets*
- Quality

**Analysis and recoding.** Barriers to access are analysed using a Borda count, single-winner election method based on multiple preferences provided by the respondents<sup>10</sup>.

1. Households are asked to select the first, second, and third most important barrier for them to access WASH services.
2. The first most important barrier is weighted as “3”, the second as “2”, the third as “1”, and all others as “0”.
3. Priority scores for each of barrier are calculated as the quotient of the sum of response values over the number of responses. This can be calculated at different geographical scales from district to national.
4. Priority scores range from “0” (never reported as one of the main barriers) to “3” reported as the most important barrier by every respondent).
5. The results are then displayed for ease of interpretation as a “heat map,” a table of color coded priority scores by barrier and geographical unit.<sup>11</sup>

<sup>9</sup> Protection related concerns noted by red text.

<sup>10</sup> UNICEF. 2018. “[Sector severity and priority IDP locations with DTM data: A UNICEF step-by-step guide for Child Protection, WASH and Education Cluster Coordinators and IMOs.](#)”

<sup>11</sup> Benini, A. 2011. “[Heat maps as tools to summarize priorities expressed in needs assessments.](#)” ACAPS.

## ANNEX 2: Indicators used to calculate WASH PIN and Severity

Pillar	Sub-Pillar	Indicator	Source
Living Standards	Access to an improved water source	% Households reporting accessing an improved primary water source for drinking water in the past 30 days	JMCNA
		% Households reporting accessing an improved primary water source for domestic water in the past 30 days (cooking, bathing, not agriculture or livestock)	JMCNA
		% Households reporting presence of improved water source reachable in less than 30 minutes of travel total (by walking or available means of transport)	JMCNA
	Access to a sufficient quantity of water	% Households reporting having sufficient drinking water for all members in the past 30 days	JMCNA
		% Households reporting having sufficient water for domestic use (cooking, bathing, and cleaning, not agriculture or livestock) in the past 30 days	JMCNA
	Access to functional sanitation facilities	% Households reporting use of hygienic sanitation facilities	JMCNA
		% Households reporting using personal latrines	JMCNA
		% Households reporting sharing latrines with more than 3 households	JMCNA
	Access to functional handwashing facilities and soap	% Households reporting having soap at home or having daily access to soap	JMCNA
		% Households reporting presence of handwashing facilities reachable in less than 15 minutes of travel total	JMCNA
	Access to menstrual hygiene material	% Households reporting having menstruation materials at home or access to hygienic menstruation materials	JMCNA
	Access to environmental sanitation	% Households facing environmental sanitation problems within 10m of dwelling	JMCNA
	Access to healthcare facility	% Households reporting ability of members able to access required treatment in response to sickness, health issue by type of facility visited / healthcare sought	JMCNA
	Coping mechanisms	Water Coping Sub-Index	% Households using negative coping strategies to access water in the past 1 month/30 days
Sanitation Coping Sub-Index		% Households using negative coping strategies to access sanitation facilities in the past 1 month/30 days	JMCNA
Hygiene coping strategies		% Households using negative coping strategies to access hygienic or menstrual materials in the past 1 month/30 days	JMCNA
Physical Wellbeing	Malnutrition	% of HHs living in areas with high prevalence of GAM	Nutrition cluster
		% Households reporting health issues or illnesses for at least one member in the past 3 months by type of issue/illness	JMCNA
	WASH related morbidity in children under five	% Households reporting health issues or illnesses for at least one member in the past 3 months by type of issue/illness	JMCNA
	WASH Safety Index	% Households reporting use of latrines with walls and locks on inside of door	JMCNA
		% Households reporting use of latrines with internal source of light	JMCNA
		% Households reporting use of gender-segregated latrines	JMCNA
		% Households reporting presence of dignified latrines reachable in less than 30 minutes of travel total	JMCNA
		% Households reporting presence of improved water source reachable in less than 30 minutes of travel total (by walking or available means of transport)	JMCNA
		% Households reporting being consulted, or able to participate in, the design, location, and delivery of drinking water and water sources	JMCNA
		% Households reporting being consulted, or able to participate in, the design, location, and delivery of drinking water and water sources	JMCNA
		% Households reporting protection concerns among top 3 main concerns in procuring water	JMCNA
		% Households reporting protection concerns among top 3 main concerns in accessing adequate sanitation	JMCNA
		% Households reporting protection concerns among 3 main concerns in procuring soap, and/or hygienic menstruation materials	JMCNA