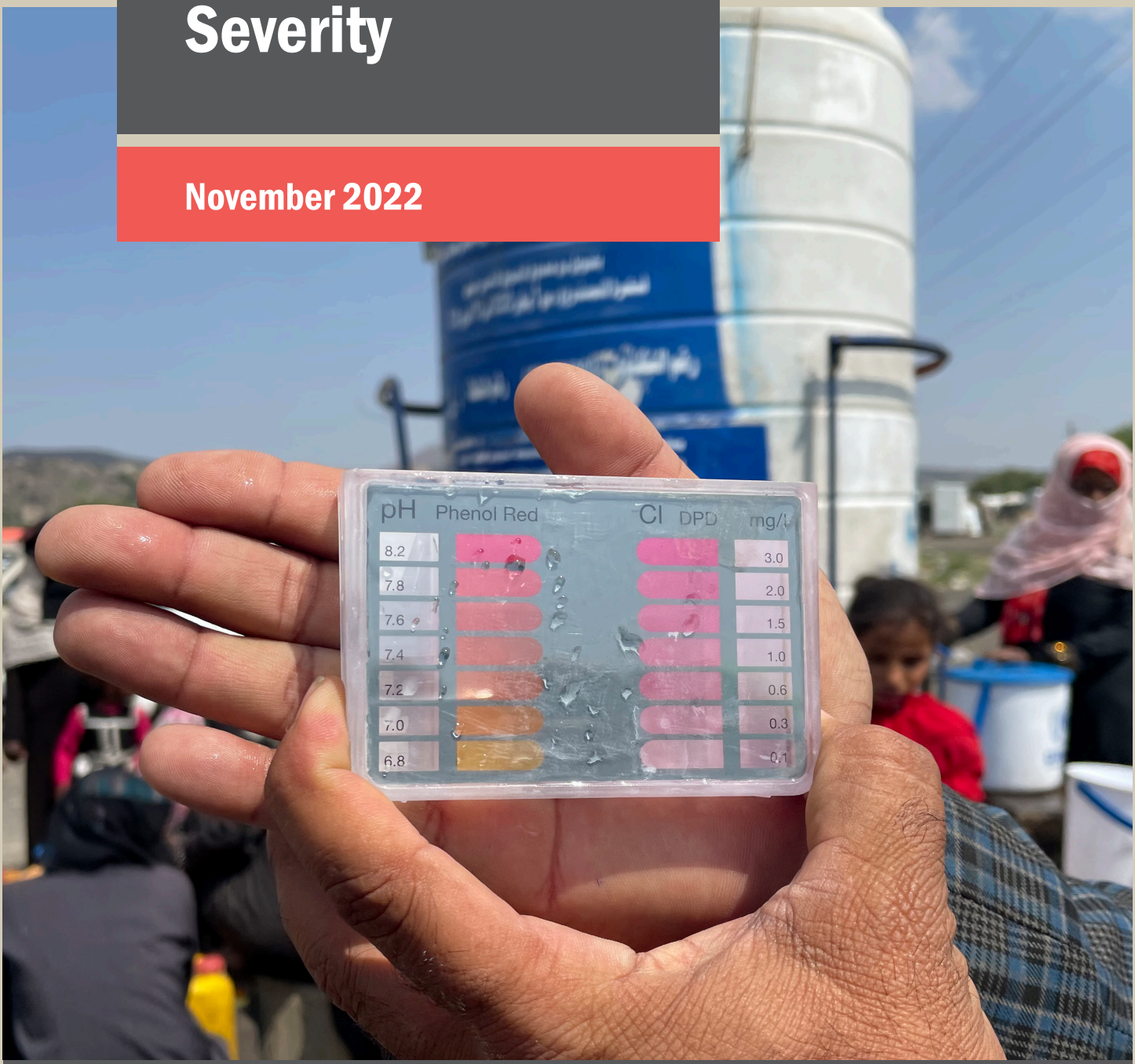
YEMEN

Methodological Note for the 2023 Calculation of WASH PiN and Severity

November 2022



WASH Cluster
Water Sanitation Hygiene

REACH
Informing more effective humanitarian action

This methodological note explains how the number of People in Need (PIN) of Water, Sanitation and Hygiene (WASH) assistance and the WASH Severity Scores for each district in Yemen will be calculated for the **2023 Yemen Humanitarian Needs Overview (HNO)**.

About REACH

REACH facilitates the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development contexts. The methodologies used by REACH include primary data collection and in-depth analysis, and all activities are conducted through inter-agency aid coordination mechanisms. REACH is a joint initiative of IMPACT Initiatives, ACTED and the United Nations Institute for Training and Research - Operational Satellite Applications Programme (UNITAR-UNOSAT). For more information please visit our website. You can contact us directly at: geneva@reach-initiative.org and follow us on Twitter @REACH_info.

1. BACKGROUND

Widely mentioned as the world's worst humanitarian crisis of the last five years, Yemen has entered its eighth year of war. The humanitarian situation in Yemen remains critical, with economic decline and protracted armed conflict causing many Yemenis to be in acute need of assistance. The conflict has further aggravated the country's underlying food insecurity, while also compromising essential services and infrastructure, including related to health and education, and significantly damaging the economy and the social fabric. Yemen also remains the sixth largest internal displacement crisis globally, with an IDP population of over 4.3 million.[1] More than one-fifth of these displacements were driven by events in Marib Governorate, due to escalating hostilities.[2] Water and sanitation systems and services throughout the country have suffered from damage and underdevelopment. In the 2022 HNO, the Yemen WASH Cluster (YWC) reported an increase from 2021 in the number of people in need of support to meet their WASH needs by 16% (17.8 million people in need), while the number of people in acute needs increased by 28.7% (11.2 million people in acute need).[3] Moreover, only less than quarter of the population has access to safe WASH services.[4] Despite these pressing needs, global funding has fallen short of meeting all required funding for WASH by 2.7 billion dollars (USD). Identifying and prioritizing the communities most in need, and determining their vulnerabilities and risks, is therefore highly necessary.

2. RATIONALE

In order to understand the WASH needs, risks and vulnerabilities of the population in Yemen, the 2023 HNO assesses WASH-related indicators across all districts in Yemen. The YWC has partnered with REACH to produce an analysis of these indicators to determine the number of Population in Need (PiN), and the severity of needs, by demographic group and geographic location. This document outlines which indicators and resources will be used for informing the HNO, how these indicators are built, how the severity of needs is scaled, and how the number of PiN is calculated

3. ANALYTICAL FRAMEWORK

The analytical framework for WASH-related indicators for the 2023 HNO is based on the Joint Inter-Sectoral Analysis Framework (JIAF)[5]. The framework comprises five main pillars: the first three pillars context, event/shock, and impact define the scope of the crisis, the fourth pillar, the humanitarian conditions, allows to classify the severity of the humanitarian needs through 3 humanitarian consequences: living standards, coping mechanisms and physical and mental wellbeing; the last pillar is the forecasting which provides a forward-looking lens that projects needs depending on the most likely evolution of the crisis.

Due to the lack of resources, the 2023 Yemen HNO will primarily consider the sub-pillar: physical and mental well-being. This pillar will be informed by several sectoral indicators. As depicted in Table 1 below, the physical and mental well-being sub-pillar will be informed by four indicators: 1) access to improved water source, 2) access to sufficient quantity of water, 3) access to functional handwashing facilities and soap, and 4) access to functional sanitation facilities.

Table 1. Indicators used to calculate WASH PIN and Severity Scores

Pillar	Sub-Pillar	Indicator	Sub-indicator	Source
Humanitarian conditions	Physical and Mental Well being	Access to improved water source	% of HHs by type of primary source of drinking water	WANTS, CCCM Site Reporting, MCLA
		Access to sufficient quantity of water	% of HHs by time (minutes) taken to fetch water (round	WANTS, MCLA, FSLA

[1] OCHA,2022 Yemen Humanitarian Response Plan, April 2022
[2] OCHA, 2022 Yemen Humanitarian Needs Overview, April 2022
[3] *Ibid.*
[4] *Ibid.*
[5] 2023 Humanitarian Programme Cycle, Joint Intersectoral Analysis Framework, May 2022.

			trip by walking, queuing and time needed to fetch water)	
			% of HHs having problems related to access to water - by type of problems	WANTS, MCLA
		Access to functional handwashing facilities and soap	% of HHs with water available at handwashing facility	WANTS, MCLA
			% of HHs with soap available at handwashing facility	
		Access to functional sanitation facilities	% of HHs by type of sanitation facility used	WANTS, CCCM Site Reporting, MCLA, FSLA

4. Analysis Process

Due to data scarcity and the absence of nation-wide household (HH) assessments, the 2023 WASH Severity Score and PiN calculations will be based on a Secondary Desk Review (SDR) of WASH assessments conducted in 2021-2022. The analysis framework will be based on the 2023 JIAF Guidance, as outlined above, provided for Data Scenario B in which household-level, linked data is not available. The SDR will be conducted using 4 different data sources: the Wash Needs Tracking System (WANTS), the CCCM Site Reporting tool, the 2021 Multi-Cluster Location Assessment (MCLA), and the 2021 Food Security and Livelihoods Assessment (FSLA).

Based on OCHA's recommendations for the 2023 HPC and in order to capture the particular difference in needs between Internally Displaced Population (IDPs) and non-IDPS, PiN and severity scores will be calculated separately for both population groups. The resources will be used as following:
Data for the Physical and mental well-being sub-pillar will be first and foremost informed by primary data collected through WANTS (for non-IDPs) and CCCM Site Reporting tool (IDPs). As outlined in Table 2 below, whenever information is not available from these assessments for a particular district, MCLA data will be considered as second option for non-IDP population and WANTS data will be considered to inform needs of IDPs. Finally, for the districts where none of the previously mentioned assessments has coverage, FSLA data will be used to inform non-IDP analysis and MCLA will be used for IDP populations.

Table 2: Resources used to calculate WASH PIN and Severity

	Primary source of data	**Secondary source**	**Third source**
Non IDPs	WANTS	MCLA	FSLA
IDPs	CCCM Site Reporting	WANTS	MCLA

5. Severity Scores Calculation for WASH Indicators

This section outlines the different indicators chosen for the 2023 HNO calculations and the distribution of severities on a 1-5 scale depending on answer choices.

5.1 Physical and Mental Well-being

5.1.1 Access to improved water source

The measurement of main water source for the population will indicate whether SPHERE standards are achieved. 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
Boreholes	Unprotected well	Valley/stream/canal
Protected wells	Unprotected spring	River/lake/pond
Protected rainwater tank	Unprotected rainwater tank	Water cistern/reservoir/dam
Bottled water	Water trucking	
Protected spring	Illegal connection to piped network	
Piped water to premise		
Public tap		

Sub-Indicator 1	Sources
% of HHs by type of primary source of drinking water	*WANTS, CCCM, MCLA*

Sub-INDICATOR 1:

1	2	3	4	5
Piped water to premise Public tap Bottled water Boreholes	Protected wells Protected rainwater tank Protected spring	Water trucking / I don't know Refuse to answer Other	Unprotected well Unprotected spring Unprotected rainwater tank Illegal connection to piped network	Surface water (river, dam, lake, pond, stream, canal)

5.1.2. Access to water sources of sufficient quantity of water

Access to sufficient water quantity will be measured by time taken to fetch water; this measurement will indicate whether SPHERE standards are achieved.

Sub-Indicator 2:	Sources
% of HHs by time (minutes) taken to fetch water (round trip by walking, queuing and time needed to fetch water)	*WANTS, MCLA, FSLA*

Sub-INDICATOR 2:

1	2	3	4	5
Not applicable Water source is located on premises	Between 5 and 15 minutes to fetch water and return Less than 15 minutes Between	Between 30 min and 1 hour Between 15 and 60 minutes	More than 1 hour More than 2 hours More than 31 minutes to fetch water and return	

Less than 5 minutes to fetch water and return	16 and 30 minutes to fetch water and return Less than 30 minutes		Between 1 and 2 hours	

Sub-Indicator 3:	**Sources**
% of HHs reporting having problems related to access to water	*WANTS, MCLA*

Sub-INDICATOR 3:

1	**2**	**3**	**4**	**5**
WANTS: 1 problem reported *MCLA tool: No problems*	WANTS: 2 problems reported *MCLA: Water is not clean/Salty water*	WANTS: 3 to 4 problems reported *MCLA: Distance too far*	WANTS: 5 or more problems reported *MCLA: Prices are too high*	WANTS: "Fetching water is dangerous" and/or other problems, *MCLA: Water is not enough*

5.1.3. Access to functional handwashing facility (and soap)

The measurement of access to functional handwashing facility (and soap) will indicate whether SPHERE standards are achieved. A functioning hand-washing facility comprises water, soap, and a pouring device.

Sub-Indicators 4	**Sources**
% of HHs with water available at handwashing facility % of HHs with soap available at handwashing facility	*WANTS, MCLA*

Sub-INDICATOR 4:

1	**2**	**3**	**4**	**5**
Household level data: Household has access to both water and soap Community level data: "Everyone (around 100%)" has access to both handwashing and soap	Household level data: household has access to water only / to soap only Community level data: 50% of people or more have access to handwashing / 50% of people or more has access to soap	Household level data: household has no access to water AND no access to soap Community level data: Less than 50% of people have access to handwashing / less than 50% of people have access to soap		

5.1.4. Access to improved sanitation facility

The measurement of access to functional sanitation facility will indicate whether SPHERE standards are achieved. Sanitation services refer to the management of excreta. This indicator is measured according to the following:

Improved sanitation facility	Unimproved sanitation facility	Open defecation
Flush or pour / flush toilet Flush latrine to tank/sewage system/pit Pit VIP toilet Pit latrine with ventilation inside the house Pit latrine with a slab and platform Flush latrine to the open Pit latrine – covered Pit latrine-covered/with slab Closed pit/lane	Open hole Hole with cover Hanging toilet/latrine Pit latrine without slab or platform / Pit latrine - open Tube or Pipe outside home Plastic Bags Bucket toilet Open hole with no cover	Bush/open field/defecation between trees or field

Sub-Indicator 5	Sources
% HHs using a sanitation facility - by type of sanitation facility used	*WANTS, CCCM, MCLA, FSLA*

INDICATOR 5:

1	2	3	4	5
Flush or pour / flush toilet Flush latrine to tank/sewage system/pit Pit VIP toilet Pit latrine with ventilation inside the house	Flush latrine to the open Pit latrine – covered Pit latrine-covered/with slab Pit latrine with a slab and platform Closed pit/lane	Open hole Hanging toilet/latrine Dry latrine Pit latrine Hole with cover I don't know Refuse to answer Other	Pit latrine without slab or platform Pit latrine - open Tube or Pipe outside home Plastic Bags Bucket toilet Open hole with no cover	Open defecation In the open Bush Open field / defecation between trees or field

6. AGGREGATED SEVERITY SCORES AND PEOPLE IN NEED

6.1. Aggregated Severity Scores

The steps below will be followed to calculate the Severity Scores for both population groups:

- Based on the percentages per answer choices for the selected indicators, a five-point severity score will be assigned for each indicator at district level, as described in Section 5 above.
- The 25% rule will be used to determine the severity score per indicator per district. The percentages for each severity score are added up gradually starting with severity 5 until 25% is

reached; the severity score in which the percentage reaches 25% or more will be determined as the final severity score for the district for each indicator.
- An overall severity score will be calculated per district using an average of all five indicators for each population group.
- The overall severity score for all popualtion at the the district level will be the highest score between IDPs and Non-IDPs population.
- Finally, in case data was missing for one of the districts, we will use experts' opinion to determine the appropriate severity score and PiN.[6]

6.2. Calculate Population in Need (PiN)

The steps below will be followed to calculate PiN for both population groups:

- The percentage of PiN for each indicator is calculated by summing the percentage of people under severity scores 3, 4 & 5.
- To calculate the overall PiN per district, the average percentage among the five indicators is considered as overall PiN percentage for each population group.
- The number of PiN for each population group will be calculated per district based on the percentage that was calculated and using the 2023 UN Population Projection dataset.
- The **final PiN number per district** for the total population is calculated by adding the total PiN number of IDPs and non-IDPs.
- The **final PiN number for Yemen** is calculated by adding the final PiN number for all districts.
- For those districts in which no data was available for IDP or non-IDP population from the assessments considered for this exercise, the intersectoral PiN was used as a proxy PiN, and the same number of population was assigned for these districts.

7. Limitations, Challenges, and Lessons Learned

Due to the lack of nationwide and localized assessments conducted in 2022, doing an SDR was the only option available to generate Severity Scores and PiN for the WASH sector. Thus, multiple sources of data from 2021 and 2022 were used for this exercise. Therefore, it is important to outline the limitations and challenges that were faced during the development of the methodology note as well as the lessons learned:

1. The questions/indicators of the different tools used to conduct the SDR had some variations related to the phrasing of the questions but also to the corresponding answer options. These differences were taken into consideration when developing the methodology through consultation with Yemen WASH Cluster and the Global WASH Cluster who provided the best classification of the responses into the 5-severity scale.
2. As described in Section 5, not all five indicators were covered by all sources. MCLA and WANTS were the only tools including all indicators selected, while CCCM Site Reporting and FSLA tools only covered three indicators. As a result, the severity scores and PiN calculations for some districts might be more accurate and precise than for the districts covered by tools including fewer indicators.
3. Even though REACH tried to align the HNO indicators with the JIAF indicators, it was impossible to have composite and solid indicators like the ones outlined in the JIAF and the Global WASH Cluster Guidelines, given that the indicators come from different assessments and are not linked, but also due to the absence of some core indicators in most of the assessments (Site reporting tool/FSLA).
4. Timeframe of data collection was different amongst the four assessments, and sometimes within the same tool (MCLA). This might have caused some discrepancies in the data collected and used for the calculations. To address this issue, the assessments with most recent data collection (WANTS and CCCM Site Reporting) were prioritized whenever data was available over assessments conducted in 2021 (MCLA and FSLA).

[6] A total of 4 districts were not covered in any of the assessments. These districts were assigned a severity score of 4 as these are district in the conflict frontlines, for which there is very limited access and where affected population and IDPs are living. As for the PiN, these districts were assigned the intersectoral PiN calculated by OCHA.

5. In addition, data collected through household level tools does not guarantee all locations at the sub-district level are covered by the assessments. Both CCCM Site Reporting and WANTS assessments are implemented by cluster partners on the locations of intervention for programmatic purpose; therefore, for most covered districts not all locations / sites were assessed through a systematic sampling.
6. A limited number of indicators were considered to calculate the severity scores and PiN. In the original methodology for this activity an additional indicator was included: % of population reporting garbage is collected through public system; to provide additional information on percentage of population facing environmental sanitation problems. However, this indicator was recorded with different questions and different answer choices in each of the assessments considered. Therefore, during the analysis process, it was found that the data recorded through this indicator could not be classified into the severity scale in a harmonized way that would accurately describe the situation and make the data for this indicator comparable across the different assessments; consequently,numbers obtained through this indicator were found to be overestimating the calculations of PiN and severity scores, andit was decided to drop this indicator in order to be able to provide more accurate estimates.
7. REACH used Microsoft excel to analyse the data; given that data came from different resources and for different populations groups, it would have been better to use softwars like R that can process large data sets.

ANNEXES

Annex 1: Secondary Desk Review

As part of the SDR methodology, REACH asked YWC partner organizations to share any WASH-related assessments conducted in 2022. The documents shared were consolidated and reviewed. Inclusion and exclusion criteria are listed in Box 1.

Box 1 Inclusion and Exclusion criteria for WASH literature review

Inclusion Criteria:

- Report presents primary data
- Data collected in Yemen in 2021-2022
- Assessment includes at least one WASH indicator
- Methodology for data collection is clearly described (geographical coverage, data collection method and sample size)
- Written in English or Arabic
- Results reported at district level

Exclusion Criteria:

- Methodology is unknown/not described
- WASH needs results are not reported

Based on the Secondary Desk Review, four main sources of data were identified: WANTS, CCCM Site Reporting, MCLA, and FSLA.

1. WASH Needs Tracking System (WANTS) is a toolkit provided by REACH and data is collected through the Yemen WASH Cluster partners on a rolling basis. The data is cleaned and analysed on a monthly basis at the district level. The data collected through WANTS between January and October 2022 was compiled and disaggregated by population group (IDPs and non-IDP population). WANTS data does not have nationwide coverage, as partners collect data on an ad-hoc basis in the districts of intervention based on their programmatic needs. For the WASH HNO 2023, WANTS data was prioritized to inform the non-IDP severity score and PiN calculations, being the most updated source of data for the districts covered.
   The main limitation of using WANTS data was the reduced coverage of the assessment. Only 30 districts were assessed by WANTS between January and October 2022. WANTS data was also considered to inform the IDP severity score and PiN calculation, however for this population group, CCCM Site Reporting tool was prioritized over WANTS given the higher geographical coverage of the CCCM tool.

   WANTS tool covers the following WASH indicators selected to inform the HNO:
   - % HHs by type of primary source of drinking water
   - % HHs by time (minutes) taken to fetch water (round trip by walking, queuing and time needed to fetch water)
   - % HHs reporting having problems related to access to water - by number of problems reported
   - % HHs with water and soap available at handwashing facility
   - % HHs using a sanitation facility - by type of sanitation facility used

2. CCCM Site Reporting tool is a toolkit provided by REACH and data is collected through the CCCM Cluster partners; information is collected from Key Informant Interview (KIIs) with knowledge of the IDP community. Information about the general conditions of the IDP sites is

collected on a rolling basis and analysed monthly to provide an updated datasets of all sites covered through this assessment.
For the WASH HNO 2023, CCCM Site Reporting data was prioritized to inform the IDP severity score and PiN calculations, being this the most updated source of data for IDPs. CCCM Site Reporting covered 136 districts since January 2022. For districts not covered by CCCM Site reporting tool, WANTS data was used as second resource to inform the IDP severity score and PiN calculation. For those districts not covered by CCCM or WANTS tools, MCLA data was used as last resource.

The main limitation of using CCCM Site Reporting data, was the low number of WASH indicators covered.
The tool covers the following WASH indicators selected to inform the HNO:

- % HHs by type of primary source of drinking water
- % HHs using a sanitation facility - by type of sanitation facility used

3. The Multi-Cluster Location Assessment (MCLA) is a nation-wide conducted in between 2021 and 2022. The assessment includes multisectoral indicators, including WASH indicators, on main needs of the population. The data is disaggregated by population group. The main limitation of this assessment is the fact that data in the South was collected in 2021 whereas the data in the North was collected in 2022, which means that data from South is outdated and the findings between North and South are different due to the different data collection timeline.
MCLA data will be used as second source to inform the 2023 WASH HNO severity score and PiN calculations for non-IDP population and as third priority resource for IDP population.

   The WASH indicators selected for the WASH HNO covered by MCLA assessment are:

   - % HHs by type of primary source of drinking water
   - % HHs by time (minutes) taken to fetch water (round trip by walking, queuing and time needed to fetch water)
   - % HHs reporting having problems related to access to water - by type of problems reported
   - % HHs with water and soap available at handwashing facility
   - % HHs using a sanitation facility - by type of sanitation facility used

4. The Food Security and Livelihoods Assessment (FSLA) is a nation-wide household level assessment conducted in 2021. The assessment includes multisectoral indicators on main needs of the population, focusing on food security and livelihoods. The main limitation of this assessment is that the data was collected in 2021, which might cause some information to be outdated, and the low number of WASH indicators covered. In addition, data from this assessment is not disaggregated by population group.

   FSLA data will be used as last source to inform the WASH 2023 HNO severity score and PiN calculations for non-IDP and IDP population.
   The WASH indicators covered by FSLA are:

   - % HHs by type of primary source of drinking water
   - % HHs by time (minutes) taken to fetch water (round trip by walking, queuing and time needed to fetch water)
   - % HHs using a sanitation facility - by type of sanitation facility used.