

CARE Baseline Survey Report

Ministry of Foreign Affairs – Czech Republic Funded Project

Project Title Restoring Water Supply System and improved Sanitation and Hygiene Practices in West Mosul, Iraq – Phase III

Location Zenjele and Ghazlani neighborhoods, West Mosul, Ninewa Governorate

Date June 2020



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LIST OF ACRONYMS

WASH	Water, Sanitation and Hygiene
DoW	Directorate of Water West Mosul
PHCC	Public Health Care Center
CFW	Cash for Work
FGD	Focus group discussions
IDP	Internally Displaced Person

1. PROJECT INTRODUCTION

With funding support from the Ministry of Foreign Affairs, Government of Czech Republic (MoFA Czech), CARE will implement a six - months project aimed at restoring water supply system and improved sanitation and hygiene practices in West Mosul, Iraq. The project will be implemented in West Mosul Zenjele and Ghazlani neighborhoods targeting IDPs, host communities and returnees with 47,500 direct beneficiaries.

The baseline assessment targeted areas identified as high priority by Directorate of water that are in need of rehabilitation and replacement of non-functional parts of water infrastructure. Local authorities are currently overwhelmed by the scale of needs and require support from donors and humanitarian agencies, as a direct contribution to enabling affected populations to have durable solutions through sustainable restoration of services such as water and sanitation. The project will directly support repair of two vital water infrastructure at Ghazlani water treatment plant and Yarmouk booster pumping station in the area of West Mosul while supporting the Municipal Authorities by building their capacity to eventually recover their costs.

The project engages the community in hygiene promotion activities and mobilize them towards greater ownership to sustain improved hygiene practices, efficient water use and handling for drinking, cooking and personal use, ultimately contributing to reduction of water borne and related diseases. The project support cleaning campaigns and removal of solid waste through inclusive cash for work approach that ensure engagement of communities through and sensitization to raise their appreciation on the need to maintain a clean environment. The project provides the requisite gear and cleaning tools such as wheelbarrows, rakes, shovel etc. for cleaning campaigns at the end of the project, the tools will be handed over to the community and / or Municipality to sustain the cleaning campaigns. with hiring trucks to collect waste and dispose the waste in dumping site and repair one truck to support the sustainability of waste collection in the neighborhoods.

Through the project, CARE address four critical gaps in Water, Sanitation and Hygiene Promotion (WASH) and sector infrastructure and equipment rehabilitation and services in two location of West Mosul:

1. Rehabilitation of water infrastructure (Water treatment plant and booster pump station)
2. Solid waste management through cleaning campaign using Cash for work (CFW) approach.
3. Support Directorate of Municipality through repair of non-functional garbage collection trucks for sustained solid waste collection and disposal.
4. Community engagement through establishing hygiene volunteers and water committees

2. PURPOSE OF THE BASELINE ASSESSMENT

The purpose of the Baseline Survey was to obtain a better understanding of the current situation in relation to water supply, sanitation and hygiene amongst the population in the target areas, and establish baseline benchmarks on key project indicators, which will enable the level of success of the project to be measured at the project end.

The results of the baseline survey will later be used to evaluate the extent to which the project has met the desired impact post project implementation compared against project endline results.

The baseline assessment assesses:

- Access to safe water and sanitation situation pre-implementation.
- Challenge of solid waste management systems and existence practices.
- Hygiene education sessions on household level
- knowledge, perception, attitude and practice in relation to hygiene, water and sanitation.

3. SAMPLING AND METHODOLOGY

3.1 SAMPLING

The sample size of 256 households determined based on a 95% confidence interval and a 5% margin of error. The following table shows sample size break down by location.

Table 1: Sampling and Sample Size Breakdown (HH Survey):

Location	Geographical unit	Families	Sample size	Agreed to participate
West Mosul	Zenjele	3540	126	131 (67 M & 64 F)
	Ghazlani	3780	130	132(69 M & 63 F)
Total		7,320	256	263 (136 M & 127 F)

For the selection of household respondents, systematic random sampling technique were used with an interval of 7 houses, calculated by dividing the number of households in the target area by the sample.

3.2. METHODOLOGY

The baseline is conducted through household survey and focus group discussions targeting a range of groups (IDPs, host communities, and returnees) and KII with government authorities, community leaders and Mukhtars.

In order to best address the objectives of the baseline assessment, MEAL team used a mixed methodology approach, including a thorough desk review, qualitative interviews (KIIs and FGDs) and quantitative surveys.

The qualitative methods used to collect data generated from both individual interviews with 256 respondents and KIIs triangulated with households. Additionally, REACH initiative monitoring reports, HRP 2020, HNO 2020 are identified as secondary data as well as official handover documents, photographs or public records. Data triangulation combined more than one method or data source to research a topic; this approach strengthened the validity of data through the cross-verification of information whilst also capturing different dimensions to provide more insight.

The qualitative individual interviews with beneficiaries and key informant interviews (KII) were semi-structured questionnaires open-ended discussions with specific prompting as required to better understand the context with 4 respondents. They are developed based on the relevant indicators as per the project log frame as well as any other identified best practice standards pertaining to WASH and waste management.

3.2.1 HOUSEHOLD SURVEY

The household survey conducted through a questionnaire-based interview using the digital data collection tool, 'Kobo Collect. The questionnaire included closed and open-ended questions, in order to generate information about the current conditions regarding water supply, sanitation, hygiene and waste management.

Kobo Collect allows for follow up questions to appear based on the respondents answer to the initial main question. This tool minimizes the risk of incorrect data as questions are only asked if they are relevant and linked to the first question. The collected data exported from the Kobo online platform into excel.

3.2.2 INDIVIDUAL INTERVIEWS INSTEAD FOCUS GROUP DISCUSSIONS

Individual qualitative interviews instead of FGDs with beneficiaries were conducted due to COVID-19 pandemic restrictions with different groups of men and women involving vulnerable groups from a random selection. All efforts were made to ensure the privacy and confidentiality to those involved, including taking notes so that participants are not identifiable in the dissemination of findings. The individual qualitative took place in safe environment such as a school or public building. The qualitative interviews questionnaire has been developed to avoid sensitive topics to eliminate any risks of potential harm to participants.

Ten qualitative interviews held in two locations of West Mosul (Zenjele, and Ghazlani neighbourhoods), using semi-structured questionnaires with open-ended questions. The interviews were separated based on gender; five interviews conducted with men, by male enumerators, and five interviews conducted with women, by female enumerators.

CARE staff from Mosul office ensured that informed consent is obtained from all participants prior to interview. The interviews took place in a safe and neutral environment such as public buildings for men, or in a private house for females, taking into consideration also the cultural and religious context.

Table 2: Individual qualitative interviews with beneficiaries

Location	Qualitative interviews with men	Qualitative interviews with women
Zenjele neighbourhood	Three interviews	Two interviews
Ghazlani neighbourhood	Three interviews	Two interviews
Total	6	4

3.2.3 KEY INFORMANT INTERVIEW

The Key Informant Interviews (KIIs) aim to collect information from individuals familiar with the details of the context / project and people living in the area who are well known and respected in the community. The purpose of the KIIs was to aid in verifying the individual qualitative interviews and household survey outcomes.

In total, 4 KIIs conducted, using semi-structured questionnaires. They are conducted with Directorate of water in Mosul, West Mosul municipality, and mukhtars of both Zenjele and Ghazlani neighbourhoods.

Table 3: Key informant interviews (KII)

Location	Respondent	Quantity of interviews
West Mosul	Directorate of water in Mosul	1
	Mukhtars of both Zenjele and Ghazlani neighbourhoods	2
	West Mosul municipality	1
Total		4 interviews

3.3 DATA COLLECTION AND ANALYSIS

The CARE baseline assessment data collection took place from June 7, 2020 to June 14, 2020 in both Zanjili and Ghazlani neighbourhoods of West Mosul to utilize existing information as much as possible and to prevent duplication of efforts.

The questionnaires were translated into Arabic and administered by data collection team who explained the questions to the householder and then recorded their answers. The household survey conducted using Kobo Collect platform. However, KIIs and individual interviews conducted through semi-structured questionnaires open-ended discussions using papers. MEAL team supervised survey coordination, planning, and implementation.

After all qualitative data was collected, the MEAL team first read through each interview in order to gain a holistic overview of the attitudes of the respondents on the water, sanitation and hygiene. Then, the data was organised into themes and sub-themes, allowing the MEAL team to structure the data in line with the baseline objectives. After the data was organized and coded, the MEAL team was able to systematically draw out key findings and results.

Quantitative data was analysed using KOBO Toolbox and Microsoft excel. The analysis focused on identifying the most significant findings. For this, the MEAL team made use of descriptive statistics, t-tests, chi-square tests and other inferential statistical tests appropriate to the variables under review. The survey includes a range of analysis covering the demographics of survey participants, household details, and access to WASH needs.

3.4 ENSURING DATA QUALITY

In order to ensure data quality, MEAL and a WASH technical staff coordinated to train the enumerators on the survey's objective, the specific questions, the survey design along with a detailed explanation of each question and participants' selection procedures.

All aspects of the data collection process and supervision were led by the MEAL team. In addition, regular close contact with the enumerators was maintained to ensure that procedures and instructions were being followed.

Throughout the data collection process, data quality was verified by MEAL staff who were supervising the process in order to ensure that it contained all needed data and that there had been no technical issues.

The approach followed to ensure high data quality standards were as follows:

- All enumerators trained on the questionnaire before data collection. The enumerators provided with an orientation on the methodology for selecting the respondents.
- Raw data was cleaned before analysis, ensuring the dataset is accurate, complete, and reliable.
- Spot checking and supervision of the data collection process was done by the MEAL's Field Officer.

3.5 LIMITATIONS

The survey used a convenience sample where only individuals who visited the health facility at the time of the survey are interviewed. This also means that people who were unable to use CARE services due to old age, disability or distance, were not included, and may have lower or higher satisfaction rates.

Additionally, the satisfaction can change over time considering the fact that the patients are interviewed at the exit straight after they receive treatment and may feel that their treatment did not work a couple of days later.

3. FINDINGS

This chapter presents the key findings of the survey, the findings is grouped into four main thematic categories as follows below.

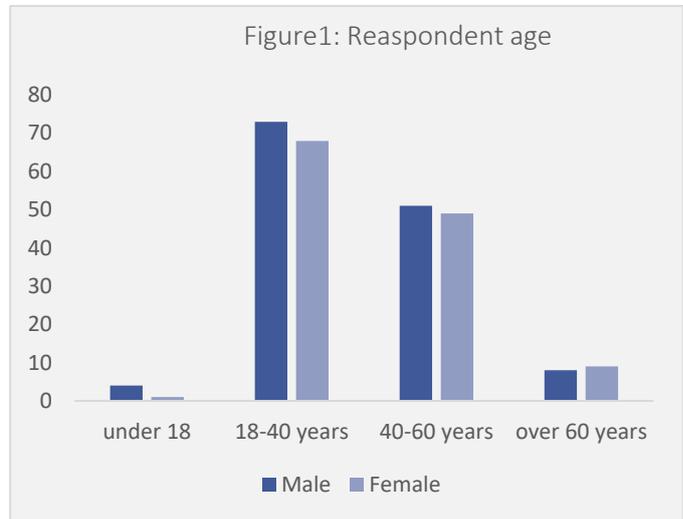
3.1 DEMOGRAPHIC INFORMATION

In total, 263 respondents participated in this survey, consisting of 127 (48%) females and 136 males (52%). 54% (n=141) of the respondents were adults between 18 to 40 years old and 38% (n=100) were adults between the age of 40 to 60 years).

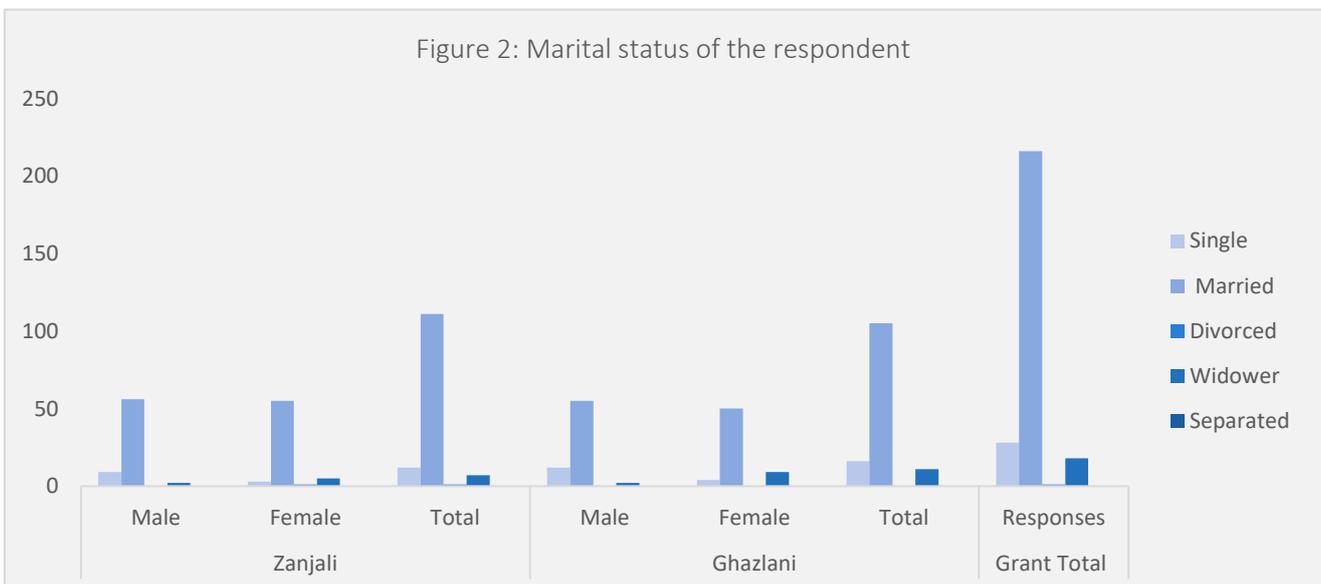
Respondents were asked to indicate what category of household they live in. Of total, 85% (n=224) respondents mentioned that they live in male headed household and 15% (n=39) female headed household. When asked what category best described the age range of their head of household. 86% (n=226) of respondents reported adult headed household (18-59), followed by elder (60 and above) 8% (n=21) and Child (17 and under) 6% (n=16).

Overall, 66% (n=184) of respondents were stayees, 30% (n=82) returnee (last year), 2% (n=6) returnee (last 6 months) and 2% (n=5) displaced. 73% (n=202) of respondents were between 18-40, and 19% (n=53) were between 41-60 years old. In addition to this, majority of respondents 73% (n=197) were married. Figure 1 and 2 describes the respondents' age and marital status who participated in the survey.

63% (n=165) of the surveyed respondents had no schooling completed, while 17% (n=44) had high school, and 9% (n=23) were nursery school to 6th grade. However, only 6% (n=15) had associate degree.



Number of family members was also collected together with other demographic information. Data from the survey shows that 42% (n=110) of respondents surveyed had 4-7 members, 24% (n=63) had 8-10, 22% (n=58) had 1-3 and only 12% (n=32) had more than 10 members in the family.

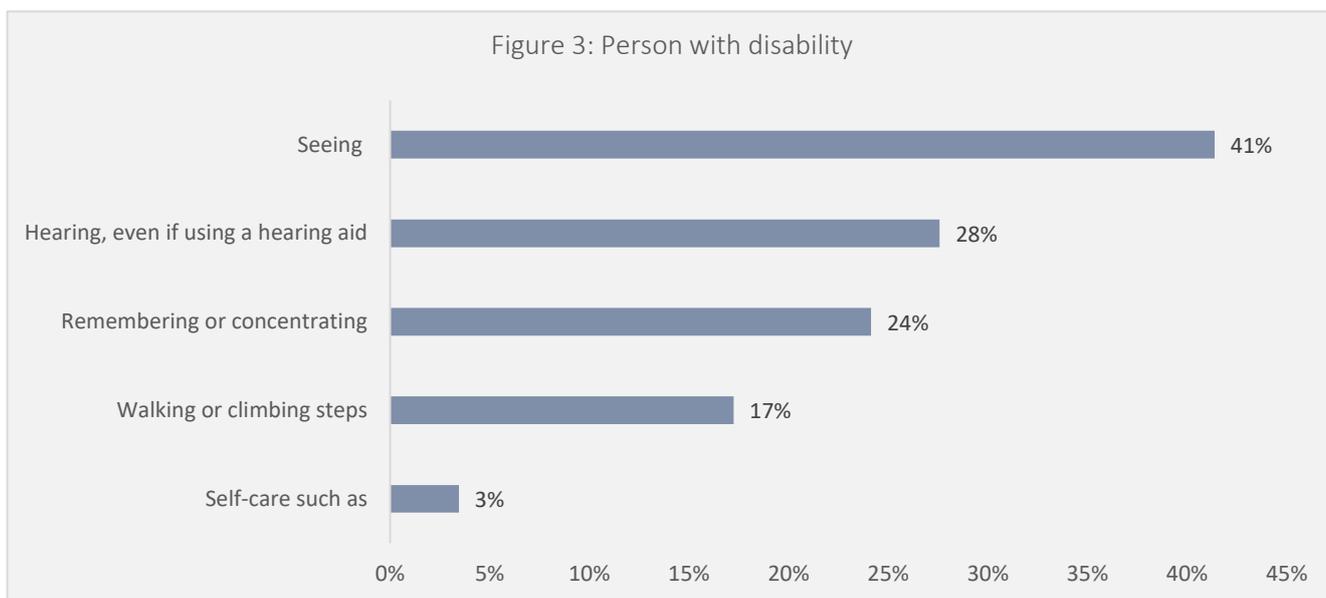


3.2 DISABILITY MEASUREMENT

It is worth mentioning that the Washington group questions were integrated into the survey questions in order to know whether the respondents had difficulties performing basic universal activities (walking, seeing, hearing, cognition, self-care and communication).

The figure below presents disability measurement data for survey target location. Out of 263 respondents, 11% (n=29) had reported they have disability. Of the 29 respondents who reported having disability, 16 were female and 13 were male. Of those only 3 respondents reported having more than one difficulty.

The distribution of these responses can be further explained as follows; 26 respondents had one type of disability, 2 had 2, and 1 had 3.



Of total who reported they have disability, the type of disability that scored lowest was inability to self-care 3% (n=8). Conversely, seeing 41% (n=108) scored the highest among the responses. When respondents were asked to indicate the number of members with disability in their family, 10 respondents said 1, 9 respondents said 2, 8 respondents said 3 and 2 respondents said 4.

Following the above question, the respondents were asked to indicate the functional cause of their difficulty. Out of the 29 respondents who reported having disability, (n=9) accident and (n=8) from birth were considered the most remarkable cause of difficulty for respondents. In addition to these difficulties, illness or disease (n=6), conflicted related (n=3), ageing (n=2) and malnutrition (n=1) were also cited by respondents.

3.3 PROJECT INDICATORS

This section of the document seeks to provide more detailed analyses than those offered within the logframe (annex A). This is with the intent of both contextualizing the logframe indicators, as well as providing the broader analyses and data requested by WASH team, seeking inform future delivery. These have been broken down by outcomes and intermediate results, to ensure relevance and promote understanding.

In many cases, the measurable indicators specified by the logframe focussed on outputs and activity (e.g. quantities of people trained, etc.), limiting the baseline questions required by MEAL frameworks. As such, the team sought to collect additional useful data shedding light on the outcome result indicators.

Project GOAL: 70% survey respondents report decrease of diseases related to poor water quality and environmental sanitation in target area.

The specific quantities of those reporting decrease of diseases related to poor water quality and environmental sanitation will need to be compiled later. However, in the interest of setting a strong baseline on the percentage of respondents with effective decrease of diseases, the baseline team sought alternative data sources on this indicator and a measurement standard has been developed to measure the above indicator. The indicator aims at decreasing the disease caused by poor quality and sanitation. The top 4 disease caused by poor water quality and environmental sanitation are as follows, diarrhea, skin disease, dysmetria, and malaria. This information collected during the baseline and the results will then be compared against the endline value at the end of the project. In the baseline, the following question addressed to obtain data for the measurement of this indicator:

“Has anyone in your family had a disease due to poor water quality and environmental sanitation in the past four weeks?”

If yes, what disease?

- Prevalence of diarrhea (poor water quality)
- Skin deasses (environmental pollution)
- Dysmetria (poor water quality)
- Malaria (environmental pollution)

This data gives a clear indication of the diverse opinion around the top 4 diseases available across the selected locations and the baseline findings support that only about 19% (n=30 in Zanjili and n= 20 in Ghazlani neighbourhoods) respectively reported that at least a member of their family had a disease due to poor water quality and environmental sanitation in the past four weeks. Out of 50 who reported having diseases within their family members, cases of prevalence of diarrhea had the biggest percentage (17% (n=28) and n=16 in Zanjili and Ghazlani) and skin illnesses (see **Error! Reference source not found.**) in other words, on average 81% (n=213) of respondents reported none of the family members had diseases and they did not suffer from illnesses linked to poor water quality and environmental pollution. The secondary data were triangulated and statistics were collected from the closes public health care centres (PHCCs), Salah-Alddin in Al-Islah and Al-Shabkoon, however, and as indicated by the key informants, residents do not usually visit the PHCCs instead they visit the local medical assistants which keep no accurate data. However; the PHCC data in Al-Matahin does indicate that there were only a few cases admitted during June 2020.

Table 1 Has anyone in your family had a disease due to poor water quality and environmental sanitation in the past four weeks?

Questions	Options	Zanjili			Ghazlani			Grant Total	
		Male	Female	Total	Male	Female	Total	Responses	Percentage
Has anyone in your family had a disease due to poor water quality and environmental sanitation in the past four weeks?	Yes	17	13	30	14	6	20	50	19%
	No	47	54	101	49	63	112	213	18%
(follow on if yes) What diseases?	Prevalence of diarrhea	13	12	28	11	5	16	44	17%
	kidney diseases	0	0	0	0	0	0	0	0%
	Skin deasses	0	1	1	0	1	1	2	1%
	Dysmetria	1	0	1	0	0	0	1	0%
	Malaria	1	0	1	0	0	0	1	0%
	others	2	0	2	3	0	3	5	2%

Outcome indicator: 65% of men, women, boys and girls in targeted neighbourhoods are sensitized about solid waste collection and disposal behaviour.

For the measurement of the above indicator, five elements were included in the household survey with four questions to be asked and one observation. There are right answers for each element and household with less than four elements wasn't considered having been sensitized about solid waste collection and disposal behavior.

Table 2: Household waste containers index based on the surveyor's observation

Household waste containers index based on the surveyor's observation		
Household garbage waste container: 0 = hygienic, 1 = pre hygienic, 2 = unhygienic, 4 = very unhygienic		
<i>Do you have waste bins nearby your house?</i>	<i>How close their waste bins to their house?</i>	<i>Do you see lots of remaining garbage in the neighbourhood¹?</i>
Yes, (0 point)	1. In front of house (0 points)	Yes, a lot (2 points)
No, (1 point)	2. Public bins in the neighbourhood (1 point)	Yes, some (1 point)
	3. no bins available in the neighbourhood (2 points)	No, (0 point)

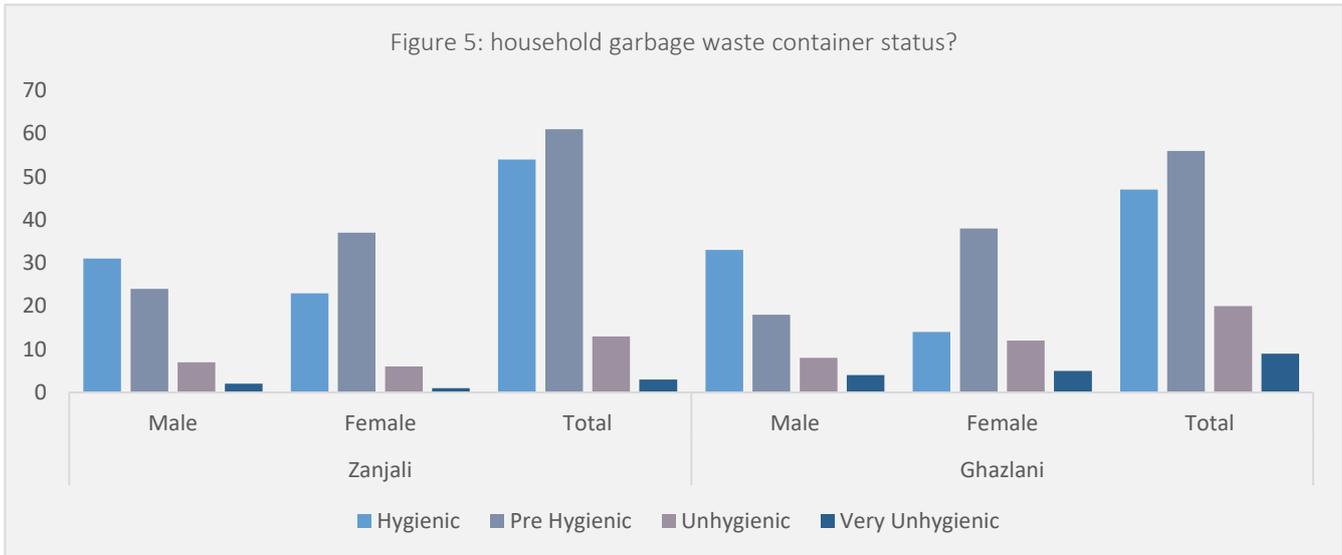
Based on the results obtained through the above elements, only 30% (n=131) of respondents stated having waste bins nearby their houses, while 41% (n=175) reported having public bins in the neighbourhood, 29% (n=125) mentioned In front of house and the remaining percentage reported No bins available in the neighbourhood.

Based on the third criteria element, data collectors were tasked to observe and report the status of remaining garbage in front of the houses. 54% (n=141) of the respondents said "Yes, some" and 10% stated "Yes, a lot". However; 33% (n=88) reported no garbage is seen Infront of the houses.

Fourth element argue the frequency of garbage being collected enough. 73% in Ghazlani & 40% in Zanjili neighbourhoods' garbage isn't been collected often enough and request increasing the frequency in the other hand, 60% in Zanjili & 27% in Ghazlani neighbourhoods agreed that frequency of garbage collection is enough.

The majority of the surveyed households were in the range of pre hygienic and hygienic practices with almost 83% (44% pre hygienic and 38% hygienic) (See **Error! Reference source not found.**). Respondent's argument about the remaining 17% with unhygienic and very unhygienic is mostly due to the lack of household garbage bins outside of the houses, residents have to travel long distances to the collection points where the larger container are located to dispose of the garbage. The garbage is not being collected often enough by the municipality (as stated by 43% see **Error! Reference source not found.**) which further deteriorate the hygiene situation.

¹The enumerators here observe any loose garbage that might have been left by individuals or household garbage bags that have not been placed in bins as an indication of the current hygiene practices.



In the data collected from key informants, it is clear that maintenance and waste removal activities are lacking. This is concerning because it may lead to a proliferation of infectious diseases. In both neighbourhoods it was noted that in maintenance of the sewage network had been disrupted- where there used to be two trucks for this purpose, there was now only one. qualitative interview participants noted that the municipality was responsible for the collection of waste from the area, but that this service was not constant, and that waste was collecting in multiple parts of the location.

The key informant as well as qualitative interviews findings support that a few percentages of households burning rubbish in both neighbourhoods - burning waste is very common there. Across both areas burning rubbish, this is substantial cause for concern; rubbish burning does not comply with relevant sphere standards and poses substantial health and safety risks to residents. This may be an important area of focus moving ahead.

Across all areas it seems that community members and the government are the most likely to be responsible for the removal of rubbish, however it is unclear from the data how much of this would constitute community clean up events; it does not appear many have been undertaken in the target communities to-date Very few INGOs seem to be active in this area- though this may be because identifying appropriate areas to deposit waste in is difficult for external actors. There may be an opportunity here, especially working in collaboration with the municipality.

Output indicator: 100% of water samples tested and meet SPHERE Standards (free residual chlorine - FRC ranges between 0.2 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).

To set a benchmark for the above indicator, it is important to mention that data were collected during the baseline survey by WASH team in coordination with DoW conducted water quality test prior to project implementation. The result of these samples will later be compared with post rehabilitation samples, in which the measurement of the indicator will be calculated to see the impact

The FRC safe drinking water standard has been followed indicating FRC, 0.2 to 0.5, 0 coliform/ 100ml, turbidity less than 5NTU, PH between 6.5 to 8.5 and chemical contamination must also be within the range. The samples conducted by CARE will be the primary source of measurement for this indicator.

CARE in coordination with DOW conducted pre water quality analysis across the project locations Al-Ghazlani and Al-Zenjele neighbourhoods with 5 water samples are collected from different spots of each neighbourhood as well as the outlet of Al-Ghazlani WTP and Al-Yarmouk BPs. Water quality test has been conducted to observe the physical, chemical and biological characteristic, prior to the implementation in order to check whether all required parameters, such as; turbidity, temperature, PH, conductivity, alkalinity, hardness calcium, magnesium,

chloride, sulphate, sodium, potassium, TDS, free residual chlorine and E coli that need 0 coliform/100 ml meets the SPHERE, WHO standards or national standards.

All tested samples prior to the interventions reads meeting WHO standards, except the test of free residual chlorine founded below the range which need FRC range 0.2 to 0.5 mg/l at the household level, FRC reads 0 and 0.1 mg/l at the household level in Al- Zenjele neighbourhood, which exposure the neighbourhood to the risk of founding coliform at any time. Based on the findings, only 75% samples tested meet SPHERE Standards (free residual chorine - FRC ranges between 0.2 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).

Outcome indicator: 80% of targeted community know 4 out 5 critical timing for handwashing.

The below question asked in the household survey with the five right answers. HHs with four or five critical timing for handwashing counted for the measurement of the indicator

Can you name critical times to wash your hand?	<input type="checkbox"/> Before preparing food. <input type="checkbox"/> After using toilet <input type="checkbox"/> After changing baby’s diapers <input type="checkbox"/> Before and after eating <input type="checkbox"/> Before feeding baby
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Table 3 - Can you name five times one should wash their hands?

Can you name five times one should wash their hands?	Zanjili		Ghazlani	
	Male	Female	Male	Female
Out of five correct (adult)	3.1/5	4.3/5	4.3/5	4.5/5
Out of five correct (Child)	2.3/5	4.2/5	4/5	4.3/5

This indicator is difficult to set a benchmark effectively within the Muslim religious context of the survey. Many respondents discussed regular ablutions and frequent washing of hands, independent of WASH concerns. Furthermore, asking people when and how frequently they wash their hands was cause of occasional offence. It may be appropriate to rethink this indicator for the future programs; a focus on frequency or recentness of vomiting, diarrhea, or other WASH-related illness may be more effective in the target areas. However; 65% women and 69% of men from the targeted community know 4 out 5 critical timing for handwashing.

3.4 ANALYSIS OF WATER, SANITATION AND HYGIENE NEEDS

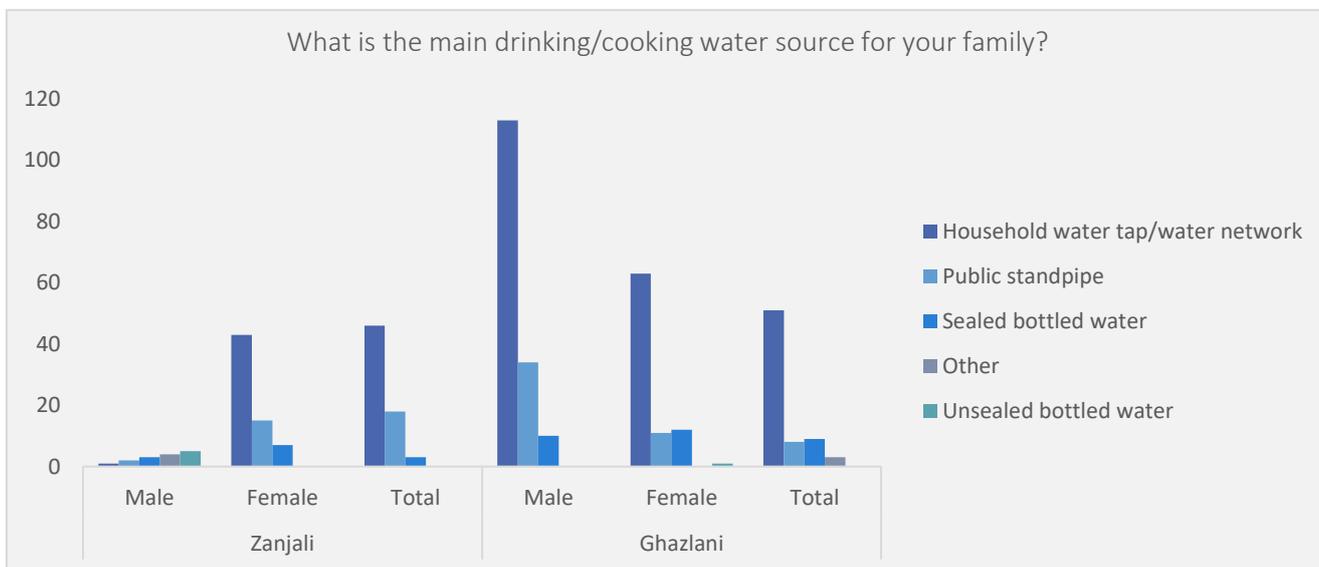
Water supply

Majority of households in Zanjili and Ghazlani neighbourhoods with 85% (n=113 in Zanjili and n=110) get water for the household purposes, such as, washing, cooking, utensil washing and hand washing through the water supply network directly to their overhead water tanks. However; a higher percentage 95% (49% men & boys, 46% women & girls) is true for the preferred source of drinking water, and about 15% indicated that Sealed bottled water is a secondary source of water.

In regards to water network schedule, respondents were asked to indicate how many days per week is water available from the aforementioned source, community seems to have different opinion with 32% (n=18 in Zanjili and n=65 in Ghazlani) are in agreement with once a week, followed by 22% (n=14 in Zanjili and n=45 in Ghazlani)

reporting each 6 days and 20% (n=47 in Zanjili and n=6 in Ghazlani). Based on this finding, it appears that Ghazlani usually gets less water compare to Zanjili neighbourhood. However; almost every household with 97% (n=122 in Zanjili and n=132 in Ghazlani) reporting having sufficient access to drinking/cooking water for their households and only 3% in Zanjili neighbourhood complaints about quantity of water due to regular disruption of water network in the area.

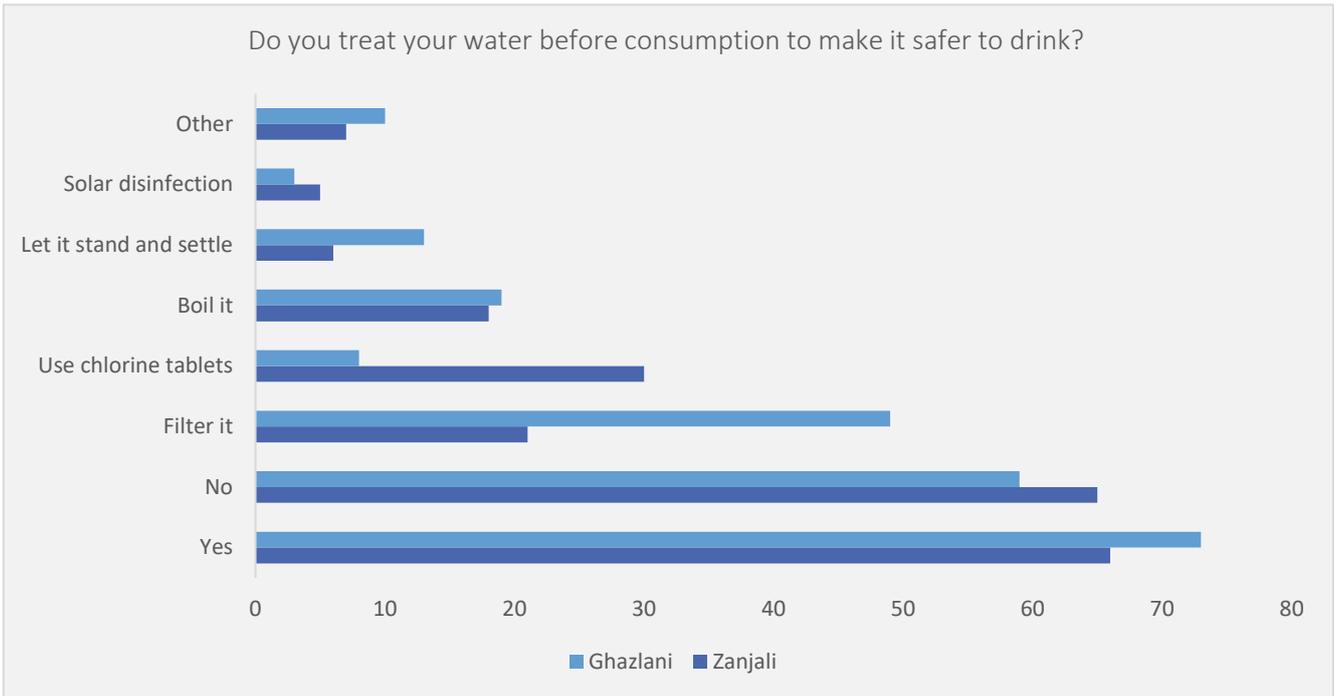
About 92% of the respondents (of which 47% men & boys, 45% women & girls) described the water they receive through the network as “good for drinking” and 5% (3% men & boys, 2% women & girls) were “concerned about the quality of the water for drinking.” Only about 3% (2% men & boys, 1% women & girls) of the respondent reported water shortages whilst 97% (47% men & boys, 50% women & girls) thought that the water is sufficient to cover all needs. With regards to the quantity, 71% (41% men & boys, 30% women & girls) thought that the storage capacity is sufficient for all their needs, and 22% (31% men & boys, 54% women & girls) thought that this storage capacity is sufficient to respond to their basic needs.



62% of households (88 Male, 75 Female) expressed that they are satisfied with access to sufficient quantity of safe water supply, however 38% of households in both neighbourhoods were un-satisfied and showed that they are not getting adequate quantity of drinking water, this due to topography of some houses in the neighbourhoods which is irregular and different slop area, also recently lack of public electrical power to operate boreholes water pumps. The municipality agreed with these findings and explained that during the summer the demand is higher but the access to electricity is reduced.

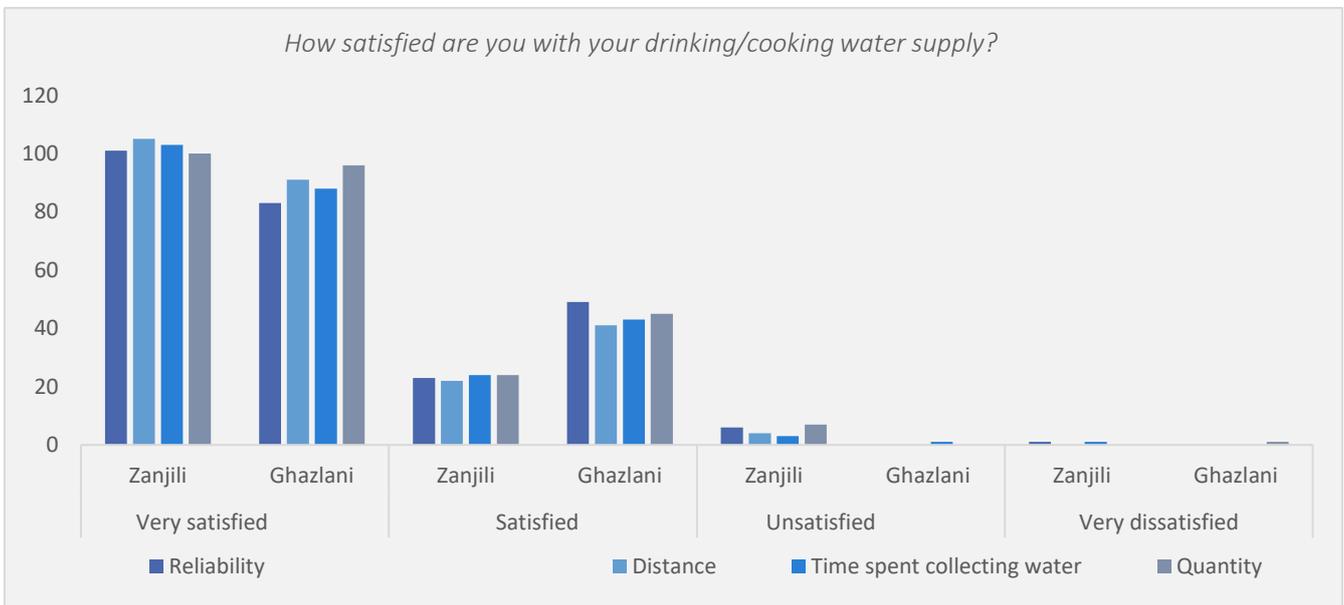
All water sources including water network, garbage and wastewater management and Hygiene are managed by municipality in West Mosul and directorate of Water in East Mosul.

A 53 percentage (n=66 in Zanjili and n=73 in Ghazlani) of the residents in both neighbourhoods treat the water to make it safer to drink. The methods employed range anywhere from simple solar disinfection, to boiling, and



8% of Zanjili citizens to use chlorine tablets, followed by 7% boil it. The most common treatment is boiling and filtering (15%), while in Zanjili people most commonly filter the water and use chlorine tablets.

Residents of Zanjili and Ghazlani neighbourhoods were tasked to rate their satisfaction with their drinking/cooking water supply and as illustrated in the below figure, on average 73% (n=101 in Zanjili and n=83 in Ghazlani) expressed their satisfaction with reliability, distance, time spent collecting water and quantity of water.



Hygiene promotion

Handwashing Knowledge:

One of the most critical hygiene behaviours, which contribute in prevention of diarrhoeal diseases, is washing hands with soap at the 5 critical moments throughout the day. of those surveyed only 60% in Zanjili and 65% in Ghazlani neighbourhoods mentioned 3 of the 5 critical handwashing moments when asked to recall these. 42%

of respondents were able to recall more than 3 of the 5 critical handwashing moments. Of those which are able to recall, (42%) respondents were able to recall 2 of the critical times of handwashing. 39% of respondents were able to recall 1 of the critical times of handwashing. 5% of respondents were able to recall none of the critical moments for handwashing.

As seen in the chart below, the critical moments of handwashing most popularly known were ‘Before eating’ (63% of respondents) and ‘After defecation’ (47% of respondents). ‘Before preparing food’ was recalled by 40%. However, the proportion of respondents who recalled that ‘Before feeding a child or breastfeeding a baby’ and ‘After cleaning a baby’s bottom or disposing of a child’s faeces’ are critical moments of handwashing was substantially lower, 3% and 11% respectively. Hence, Concern’s Hygiene Promotion intervention needs to place particular focus on increasing awareness of these moments of handwashing amongst the community, in addition to increasing awareness of the other 3 moments of handwashing

Since hygiene Promotion intervention will be targeting all community members, including female and male heads of household, the differences in knowledge between male and female respondents was assessed. A comparison of the percentages of female and male respondents recalling each critical moment of handwashing is displayed in the figure below. There is a substantial difference in the number of men and women recalling that ‘Before eating’ is a critical moment of handwashing. More than twice as many males than females recalled that ‘Before

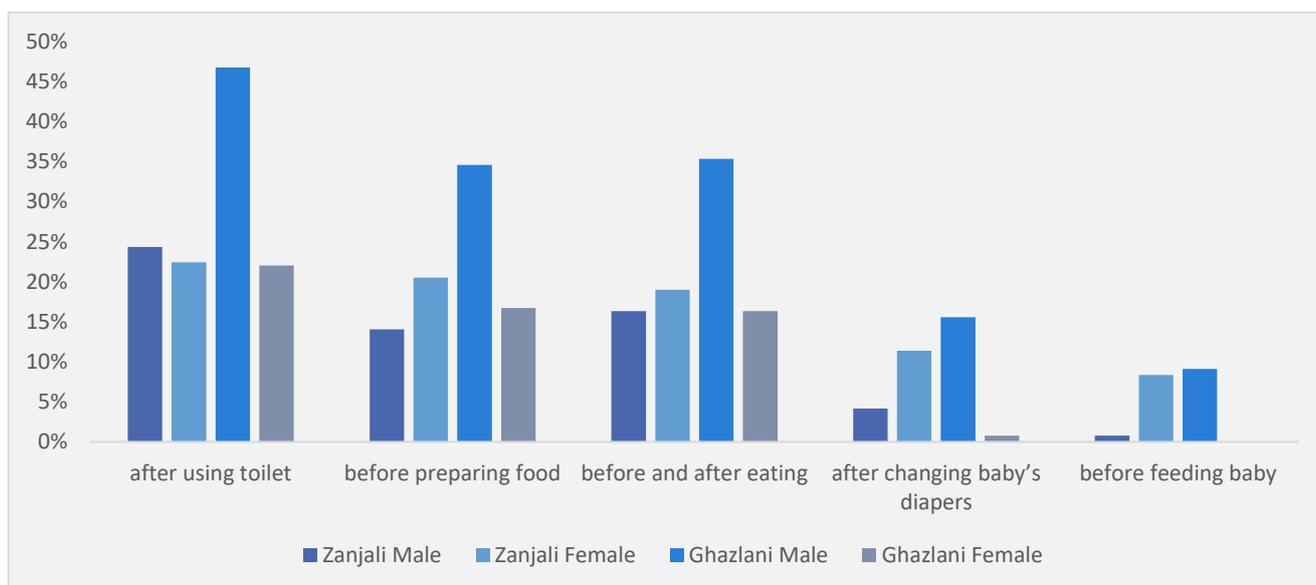


Figure 1: What do you think, what are the important timing for handwashing?

eating’ is one of the critical times for handwashing. This is surprising as, since Concern Hygiene Promotion has particularly targeted females, it would have been expected that more females than males may be aware that hands should be washed before eating. Interestingly, 26 times more females than males recalled that ‘Before preparing food’ was one of the critical times of handwashing. This suggests that perhaps women, whom according to South Sudanese culture are almost always responsible for cooking for the family, may only wash their hands before preparing food and not again before eating. As might be expected, more females than males were aware that hands should be washed ‘Before feeding a child or breastfeeding a baby’ and ‘after cleaning a baby’s bottom’. However, the difference in knowledge between females and males was not as high as might have been expected given that since the project started, the intervention has been specifically targeting women and children.

Handwashing Practice – When

Of 263 respondents surveyed, 99% stated that they had washed their hands the day before the survey. As seen below, the most popular times at which people stated they had washed their hands the previous day were ‘when

wake up in the morning' (46% of respondents), 'after take a pee' (44% of respondents), 'after I eat' with (36% of respondents) and 'before I eat' (37% of respondents). Note that, the fact that more respondents stated practice handwashing 'when wake up in the morning' than those who knew that 'Before eating' is a critical moment for handwashing, is likely explained by the fact that handwashing before eating is part of the culture, so some people may wash their hands before eating out of habit, without knowing that this is a barrier to faecal-oral disease transmission. The practice of handwashing 'Before feeding a child or breastfeeding a baby' and 'After cleaning a baby's bottom or disposing of a child's faeces' were alarmingly low, at 2% and 4% respectively. The Concern Hygiene Promotion team should therefore focus on messaging around the importance of washing hands after defecation and after cleaning a child's bottom. Hence, the self-reported practice of handwashing at the critical moments to a good extent mirrors the knowledge of the 5 critical moments of handwashing amongst the respondents. This suggests that there is a link between knowledge and practice of the 5 critical moments of handwashing, whereby, when a person has an awareness of a moment of handwashing, they are more likely to then practice handwashing at that moment.

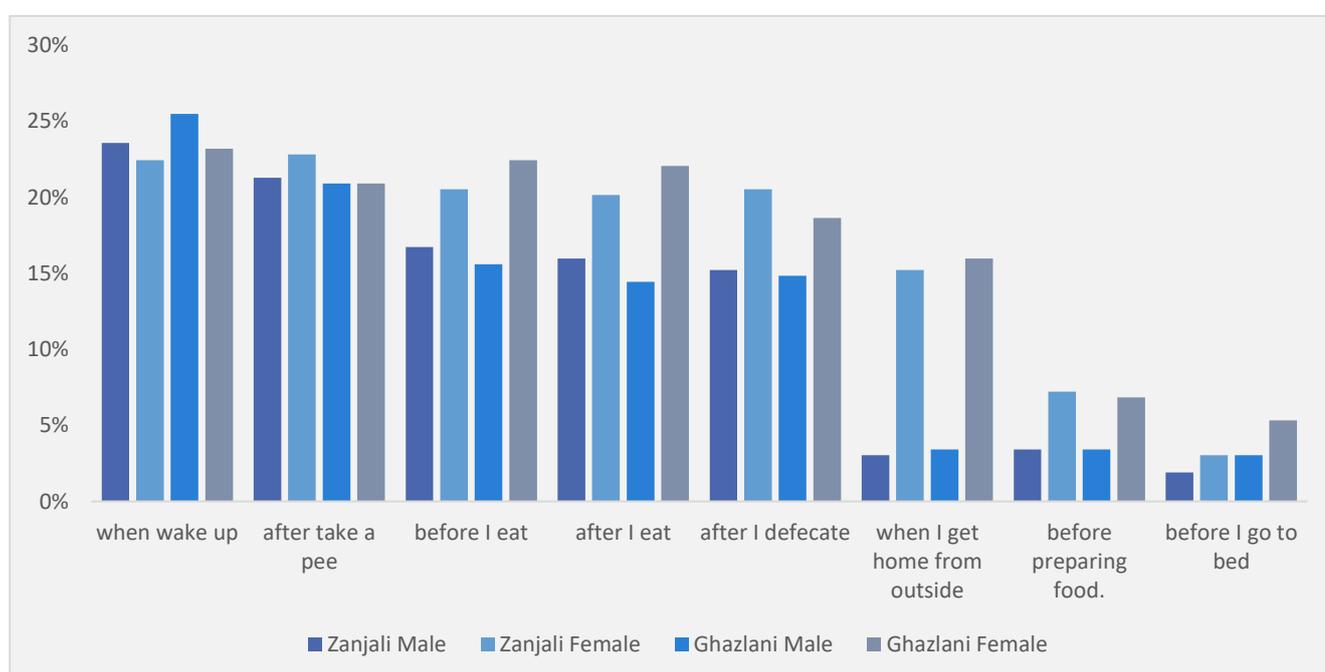


Figure 2: When do you wash your hands?

Handwashing practice – Materials

When asked what they washed their hands with, 84% of respondents in both neighbourhoods replied, "soap and water" and 16% of respondents replied, "only water". Furthermore, of those who stated that they use soap to wash their hands, 84%, when asked if they could show the soap were able to present soap at the time of the survey. However, it is noted that there is no monthly soap distribution by any actors, thus; each household is responsible to purchase hygiene materials. Respondents who self-reported that they handwash with soap were asked to present soap as a proxy to verify and also enumerators were observing during the interviews that this is what they are practicing. Soap is widely available in the market in both neighbourhoods, but according to the qualitative interviews, not all households can afford to purchase it. Just 2% of those who said they used soap and water for handwashing also said that, when soap is not available, they use only water.

Menstrual Hygiene practices in Adolescent Girls

Assessing menstrual hygiene status was an area of this baseline study. Young girls and adolescents in the age group of 12-18 years were identified and interviewed to understand their knowledge, attitude and practice related to menstrual hygiene.

'Menstruation' or 'period' is normal vaginal bleeding that occurs as part of a woman's monthly cycle, however taboo associated with the issue prevents the girls from seeking knowledge about its proper management. This not only impacts the menstrual hygiene of young girls and adolescents but also has a strong effect on their health and personality. As part of this study, questions on hygiene practices related to menstruation, source of information seeking, disposal pattern of sanitary pads were asked with girls by female enumerators and response were elicited to understand their menstrual hygiene status and associated behaviour.

An important finding that has emerged from the study is that 82.8 % of young girls and adolescents discuss menstruation related questions with their mothers. It is important to understand that the source where one seeks information from is indicative of how openly one can discuss the given issue in the society. Siblings and family relatives emerge as second most key source of information with 14.1 % of girls consider them as a knowledge source and discuss the issue with them. 3.1 % of girls discuss the issue with their friends.

Handwashing practices of Adolescents

As part of the study, handwashing pattern of adolescent girls was also studied. It was found that a very high percentage of adolescent girls with 88% in both neighbourhoods have reported knowledge and practice of handwashing after toilet, before cooking food and before eating food. However, the knowledge in terms of handwashing before breastfeeding and after cleaning baby feces is marked low at 23.4 % and 34.4 % respectively.

Another cause of concern is even though handwashing after toilet is routinely done with soap and water, handwashing before cooking food and before eating is done using plain water for 9.4% and 7.8 % of adolescent girls respectively. Thus, the focus here in case of adolescent girls should be on use of soap and water for all handwashing points. It is also to be noted, 37.5 % of adolescent girls have reported incident of fever or diarrhea in last 1 month in their neighbourhoods.

Water Storage

100% of households surveyed had water containers (family water tanks) within the households. On average (mean), each household had 2.4 water containers. The median value for the number of water containers was 2 containers per household. Water Storage capacity within the household varied from 500 litres to 1500 litres across the 263 households surveyed in both neighbourhoods, with the average (mean) water storage capacity per household being 1000 litres. The median value for water storage capacity across all households surveyed was 1000 litres. According to the Sphere Standard (Sphere Project,2020), every household should have access to at least two 10-20 litre containers. Hence, 100% of households surveyed met this Sphere Standard. Even if the upper limit of the Sphere Standard (40 litres) is considered, again 100% of households surveyed met the Sphere Standard. Hence, Water Storage capacity is currently not a critical issue in both neighbourhoods.

Hygienic Status of the Water Containers

On inspection by the Survey Enumerators, in 98% of the households surveyed, all water containers were covered, whilst in only 2% of the households surveyed some of the water containers were covered. And 0% of households, none of the water containers were covered. Similarly, on inspection by the survey enumerators, in 85% of the households surveyed, all water containers were clean, whilst in 12% of the households surveyed some of the water containers were clean. In just 3% of households, none of the water containers were clean.

Waste Management

95% (45% Male, 51% Female) of households responded and confirmed that families collect and gather their garbage in both communal (78%) containers and household garbage containers (22%), therefore compiling of garbage in one point of neighbourhood is very rare. Also, a reason of compiling garbage is due to lack of communal garbage containers and bags.

Therefore, in addition to that 59% (28% Male, 31% Female) of households responded that garbage truck is collecting garbage two times in a week, however that some other reacted that truck go through their section only one day a week.

COVID-19:

Given the already deep vulnerabilities that exist in Iraq, and particularly among the people targeted in West Mosul through the humanitarian response plan, the humanitarian community is working based on an assumption that all those targeted through the HRP are at risk of contracting or otherwise being affected by the impact of the disease. Moreover, it is believed that the most vulnerable would be impacted the most given the disruption of vital aid delivery and lack of coping mechanisms. Other population groups who were considered as in need of assistance in the 2020 HNO, but not in acute need and thus not targeted in the 2020 HRP, are likely to also see their vulnerabilities deepen should the closures and movement restrictions continue and thus there is a high risk that the humanitarian caseload will increase through the end of the year and beyond.

Women's access to information is defined by a number of factors. Of the 3.3 million people in Iraq who are illiterate, 2.3 million are women, and this restricts their access to written documents. Gender norms and cultural factors also influence the access of women and girls to information. For instance, according to the quantitative data, 70% of women in both neighbourhoods tend to find out about services or assistance available in their area through neighbours or by word of mouth and women mainly rely on information received from family members, especially husbands or parents, to form an opinion. The finding shows that women's use of new technologies remains limited, and in some communities' women and girls are not allowed to use social media platforms such as Facebook. These findings illustrate the digital gender gap in neighbourhoods, where 98% of men have access to the Internet compared with just 73% of women.

All respondents interviewed had heard about COVID-19, and most key informants identified age and a weak immune system as major risk factors for coronavirus. However, misconceptions and rumours were still common. One female key informant stated that her daughter-in-law could get the disease from her animals; some people believed that coronavirus leads to male infertility; and some segments of communities played down the risk of COVID-19, believing that it did not exist or that it could be prevented by using herbs or ginger or by visiting holy places.

Women bear most of the burden of cleaning the house, preparing food, and taking care of children and sick people. While women used to spend on average more than six hours a day performing unpaid activities, their burden is likely to increase due to the COVID-19 pandemic. While men and boys are responsible for earning a living and for protecting their family, women and girls are responsible for taking care of the family inside the house. When asked respondents if they know, what are the sign and symptom of COVID -19, 99% (n=130 in Zanjili and n=131 in Ghazlani) of the respondents reported being aware of the symptom of coronavirus. However; in the follow up question, respondents were assigned to mention some symptoms they are aware, Fever was the most common word with (95%), followed by Cough with (85%), Body pain with (68%) and interestingly flue was only 1%.

Respondents of both neighbourhoods were asked to clarify their understanding on how to avoid the risk of coronavirus spread, majority of interviewees with 94% in both neighbourhoods agreed with Frequent Hand Wash, followed by maintaining physical distance with (85%) as well as avoid touching (73%), using the mask (71%) and the last option considered by respondents were avoid gathering with only 55%. 100% of respondents agreed that the presence of community hygiene volunteers necessary to enhance the hygiene behaviour in the neighbourhoods

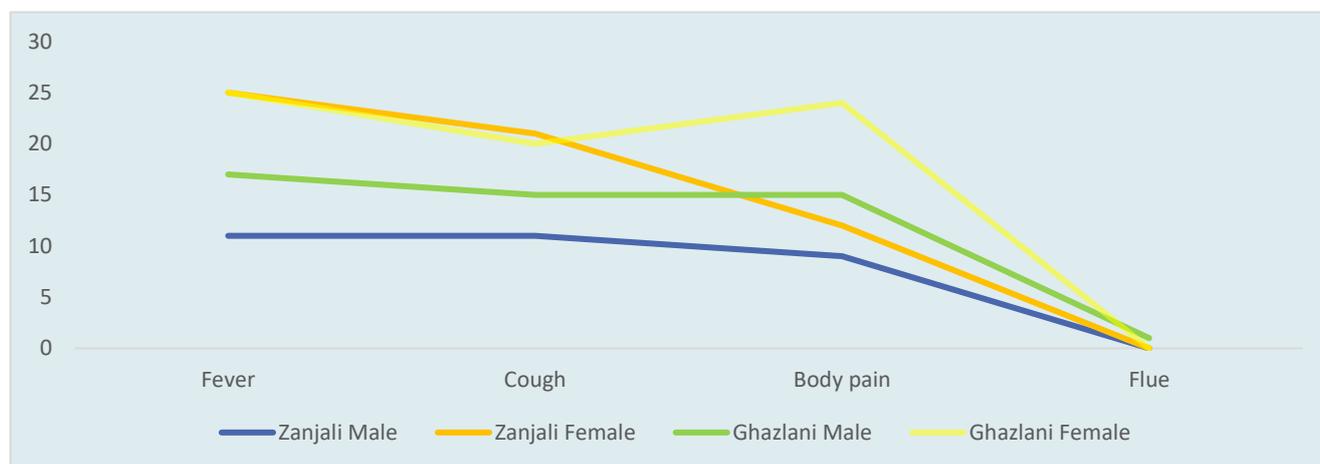


Figure 3: Sign and symptom of COVID -19

4. MAJOR ISSUE AREAS & RECOMMENDATIONS

The findings of the baseline survey indicate that, amongst the both target neighbourhoods, there are gaps in knowledge of diarrhea causes and prevention as well as COVID-19 pandemic and in the practice of key sanitation and hygiene behaviours. In general, access to basic items to enable adequate hygiene and sanitation practices, including soap and buckets seems to be above the Sphere Standard. Access to protected water sources overall is quite good. Some of these major issues, and general recommendations about how to address them can be found alone:

OVERALL RECOMMENDATIONS

- Ensure regular consultations with different groups of women, men, girls and boys with and without disabilities and inclusive and accessible water, sanitation and hygiene services and materials for all communities in both neighbourhoods about the overall needs and while issues appear with the implementation of garbage collection, dislodging and hygiene awareness, and preferences concerning the services and the locations of service points. Inform the humanitarian response with the consultation results.
- Ensure sharing information that is accessible by and appropriate for all members of the communities, including women, girls, boys, elderly, people with disabilities, those with low literacy rates or who belong to the linguistic minorities
- Ensure collection of sex and age disaggregated data (SADD) as all WASH activities must collect at minimum. If possible, make sure using Washington Group Questionnaire to collect disability disaggregated data. Once collected, utilize data to analyse trends in response and inform programming based on the analysis.

WASH RELATED RECOMMENDATIONS

- Coordination with West Mosul Directorate of Municipality (DOM) to explore sustainable solution for garbage collection, transportation and safe disposal in targeted neighbourhood. Rather on quick interventions with taking gender and equity too by adapting best mechanisms to achieve that.
- Based on the identified needs of water supply and quality in both neighbourhoods for women, men, boys and girls, CARE to provide the necessary support to relevant directorate to maintain and repair the non-functional part of water infrastructure in treatment plant, Booster station and network.
- Water System Management: The survey and qualitative results suggest that there is substantial diversity in terms of water infrastructure, resources, and facilities across the selected neighbourhoods. While in both neighbourhoods there does appear to be regular distributions of drinking water, the consistent availability and quality of water in other areas is uncertain. For example, 65% of the respondents indicated that they rely on public water network. Ensuring that the targeted communities have consistent access to clean water could be a strong area of focus moving forward in these areas, particularly where the water source appears to be most uncertain or unregulated/untested. Therefore, it's recommended to access the water source and do rehabilitation of non-functional infrastructure, in order to ensure the continues / uninterrupted supply of drinking water.
- Toilet Availability & Maintenance: Although the results from both neighbourhoods indicate that the almost all of respondents have access to a toilet. Across both locations, the data suggests that there are some issues with toilet cleaning and maintenance. Distributing sufficient cleaning supplies as well as either training local community members on toilet maintenance or hiring technicians to undertake regular maintenance could be positive routes for improvement moving forward. Hygiene team should include the domestic cleaning topic in regular awareness session, highlight the importance of toilet maintenance and regular cleaning and link of cleaning with sanitation related diseases.
- Toilet Safety & Hygiene: The data suggests that across both locations, the majority of respondents use toilet and/or bathing facilities shared by both men and women. Most respondents indicated that they felt safe using these areas, although respondents seem to feel much safer in toilets than in bathing areas. Based on the reasons provided by respondents about why they feel unsafe using these facilities, improving the cleaning and maintenance of toilets used by target populations would likely help with perceptions of safety. Providing separate facilities for men and women could also improve perceptions of safety, particularly in making women and children feel safer using facilities shared with other households. However this intervention is not proposed in the project, therefore it's recommended that HP team should raise awareness about safety and dignity aspect and mobilize household to install safety and dignity item such as (Door, lock and handle etc) with toilets and shower to provide the needed privacy for users.
- It's recommended that Hygiene team should raise awareness about handwashing practices, particularly at critical timing such as (before breast feeding, after cleaning the child bottom etc)
- It has been observed that the prevalence of diarrhoeal disease is one of the main diseases in the area, therefore it's recommended that Hygiene team should raise awareness in community about faecal- Oral transmission roots, diarrhoeal transmission roots and how we can prevent our self from disease.
- Improvement of Waste Management Infrastructure & Services: Data collected from survey and from qualitative interactions suggest that solid waste management is facing some challenges within the targeted communities. Respondents indicated that they dispose of their garbage in piles, rather than bins or pits; in these locations, it also appears that garbage collection is infrequent. Moreover, some respondents indicated that they burn their rubbish. Facilitating regular garbage collection (whether through providing trucks, garbage collectors, or the funds to support such hires or maintaining municipality's damaged track) as well

as the distribution of relevant waste management materials – including bin bags and waste bins – could help improve waste management practices and services, mitigating some of the health risk posed by the current situation.

- *Providing Relevant WASH-Focussed Education*: The majority of adult and child respondents indicated that they had not received any training or education in water cleanliness, sanitation, or hygiene. Providing such trainings, particularly ones designed to address particular issues relevant to the community or seasonal concerns – rather than more generic, less-targeted education, could help expand community knowledge about water, sanitation, and hygiene issues affecting them, their families, and their communities as well as to improve the rates of good WASH practices.
- Formation of WASH committee from neighbourhood and involve committee in the implementation of project activities will contribute to the sustainability of implementation. Because attitude and behaviour of cleaning neighbourhood will extend and be more sustainable even after completion of the project, neighbourhood will have their own committee and ritual, as well as committee will be involved in site handover process after completion of activity Therefore, committee formation is recommended prior to the implementation of activity.
- It's recommended that. cleaning and rehabilitation of all blocked drainage and sewage system should be included in CFW clean-up campaign, ensure the re-opening of those part of sewage system that been blocked due to recent conflict.
- Provide cash for work project for most vulnerable families to clean their neighbourhoods and be part of the project.
- There is great need to increase awareness on the risks of consumption of unsafe drinking water -one root cause of many diarrheal and water-borne diseases. Capacity building on water treatment using simple methods such boiling should be conducted if water sources don't be fixed.
- Based on the world health organization (WHO), Iraqi ministry of health (MOH) and cluster approved IEC materials for prevention of COVID-19. The IEC materials must be adapted to the local context to ensure appropriateness and effectiveness of the messaging (e.g. local dialect, social media campaigns etc.) and used in order to provide the necessary promotion around social distancing, travellers who are sick to delay or avoid travel to affected areas, in particular for elderly travellers and people with chronic diseases or underlying health conditions. As well as general recommendations for personal hygiene, cough etiquette and keeping a distance of at least one metre from persons showing symptoms remain particularly important for all travellers.

Annex A – A summary of project Logframe Matrix &. Updated June 2020

INTERVENTION LOGIC	INDICATORS	TARGET	BASELINE RESULT	BASELINE STATUS (JUNE 2020)
<p>OVERALL OBJECTIVE: To reduce the risks of diarrhoeal diseases- contribution to morbidity, mortality among conflict effected vulnerable community of West Mosul- Iraq by increasing their access to safe drinking water, improve hygiene behaviour and environmental sanitation services</p>	<p>70% survey respondents report decrease of diseases related to poor water quality and environmental sanitation in target area.</p>	<p>70%</p>	<p>19%</p>	<p>Baseline finding gives a clear indication of the diverse opinion around diseases available across the selected locations and the baseline findings support that only about 19% (n=30 in Zanjili and n= 20 in Ghazlani neighbourhoods) respectively reported that at least a member of their family had a disease due to poor water quality and environmental sanitation in the past four weeks. Out of 50 who reported having diseases within their family members, cases of prevalence of diarrhea had the biggest percentage (17% (n=28) and n=16 in Zanjili and Ghazlani) and skin illnesses. In other words, on average 81% (n=213) of respondents reported none of the family members had diseases and they did not suffer from illnesses linked to poor water quality and environmental pollution.</p>
<p>outcome 1: Provide equitable and sustainable access to safe drinking water to vulnerable women, men, boys and girls of conflict-affected communities in West Mosul.</p>	<p>90% of targeted households provided with safe drinking water having FRC, 0.2 to 0.5, 0 coliform/ 100ml and free from chemical contamination (arsenic)</p>	<p>90%</p>	<p>75%</p>	<p>All tested samples prior to the interventions reads meeting WHO standards, except the test of free residual chlorine founded below the range which need FRC range 0.2 to 0.5 mg/l at the household level, FRC reads 0 and 0.1 mg/l at the household level in Al-Zenjele neighbourhood, which exposure the neighbourhood to the risk of founding coliform at any time. Based on the findings, only 75% samples tested meet SPHERE Standards (free residual chorine - FRC</p>

				ranges between 0.2 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).
outcome 3: To improve the environmental sanitation of targeted area	65% of men, women, boys and girls in targeted neighbourhoods are sensitized about solid waste collection and disposal behavior.	65%	17%	The majority of the surveyed households were in the range of pre hygienic and hygienic practices with almost 83% (44% pre hygienic and 38% hygienic). Respondent's argument about the remaining 17% with unhygienic and very unhygienic is mostly due to the lack of household garbage bins outside of the houses, residents have to travel long distances to the collection points where the larger container are located to dispose of the garbage. The garbage is not being collected often enough by the municipality (as stated by 43% see Error! Reference source not found.) which further deteriorate the hygiene situation
outcome 3: The conflict affected population adopt positive hygiene behaviour.	80% of targeted community know 4 out 5 critical timing for handwashing	80%	67%	This indicator is difficult to set a benchmark effectively within the Muslim religious context of the survey. Many respondents discussed regular ablutions and frequent washing of hands, independent of WASH concerns. Furthermore, asking people when and how frequently they wash their hands was cause of occasional offence. It may be appropriate to rethink this indicator for the future programs; a focus on frequency or recentness of vomiting, diarrhea, or other WASH-related illness may be more effective in the target areas. However; 65% women and 69% of

				men from the targeted community know 4 out of 5 critical timing for handwashing.
Output: Rehabilitation of the Ghazlani water treatment plant and Al-Yarmouk booster pump station is completed, providing clean water in sufficient quantity and quality for 47,500 vulnerable men, women, girls and boys in targeted neighbourhoods.	100% of water samples tested and meet SPHERE Standards (free residual chlorine - FRC ranges between 0.2 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).	100%	75%	The FRC safe drinking water standard has been followed indicating FRC, 0.2 to 0.5, 0 coliform/ 100ml and free from chemical contamination (arsenic). The samples conducted by CARE in coordination with DoW will be the primary source of measurement for this indicator. All tested samples prior to the interventions reads meeting WHO standards, except the test of free residual chlorine founded below the range which need FRC range 0.2 to 0.5 mg/l at the household level, FRC reads 0 and 0.1 mg/l at the household level in Al-Zenjele neighbourhood, which exposure the neighbourhood to the risk of founding coliform at any time. Based on the findings, only 75% samples tested meet SPHERE Standards (free residual chlorine - FRC ranges between 0.2 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).