

# Final Evaluation Report

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ENSURING ACCESS TO DRINKING WATER, CLEAN  
ENVIRONMENT AND GOOD HYGIENE IN WEST MOSUL, IRAQ

November 2019



Location: Al-Matahin and Al-Islah neighbourhoods of West Mosul, Iraq

Period: June 2019 – November 2019

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## LIST OF ACRONYMS

<b>WASH</b>	Water, Sanitation and Hygiene
<b>DoW</b>	Directorate of Water represented here by the Water Maintenance Directorate of West Mosul
<b>CHVs</b>	Community Hygiene Volunteers
<b>PHCC</b>	Public Health Care Center
<b>CFW</b>	Cash for Work
<b>FGD</b>	Focus group discussions
<b>IDP</b>	Internally Displaced Person

## Executive Summary

With the objective of providing vulnerable women, men, boys and girls in conflict-affected, underserved and epidemic-prone communities and improving civic participation of local residents, CARE's interventions targeted highly prioritized areas of West Mosul in need of installation and rehabilitation of water supply systems through close collaboration with the Directorate of Water (DoW) as the local authorities are currently overwhelmed by the scale of needs to enable affected populations to return home. The project directly rehabilitated two water pipe networks in the Al-Matahin and Al-Islah neighbourhoods in West Mosul and connected new areas that were previously not legally connected to the network. The project also supported the Directorate of Municipality through repairing three waste collection tractors owned by the Municipality. The project provided 30 jobs through cash for work opportunities working in cleaning campaigns for households in strong need of financial support and aimed to raise hygiene awareness amongst the residents. Also, the project aimed to mobilize local communities towards greater ownership in respect of sustainable provision of clean water for drinking, cooking and personal use, contributing to reduction of water related diseases.

With this project, CARE addressed three critical gaps in water rehabilitation systems and services in West Mosul by:

- the rehabilitation of water supply system,
- solid waste management, and
- community engagement through establishing hygiene volunteers and water committees.

The endline evaluation seeks to analyze the endline values for key WASH indicators as stated in the project documents in the targeted areas and to assess, impact and effectiveness of programming to successfully track accomplishments of the WASH project, relevance and sustainability of the project after the implementation through the usage of quantitative and qualitative data. The evaluation also looked into areas of success as well as challenges faced implementing activities in Al-Matahin and Al-Islah neighborhoods of West Mosul.

The evaluation found that the majority of the project indicator targets are fully achieved, 82% (22 out of 27) indicators are 100% or above, with a high efficiency of the works and timeliness, and four indicators are partially achieved. One main indicator was not fully measured, due to lack of data (refer to Annex A).

The residents (94% (n=95) of Al-Islah respondents and 97% (n=97) of Al-Matahin respondents) thought that the project was carried out efficiently as compared to similar projects that they have had experience especially the water network rehabilitation works.

The relevance of the interventions was in line with most of the needs of the neighbourhoods related to water, sanitation and hygiene as about 74% (n=75) (60% F, 14%M) in Al-Islah and 65% (n=65) (41% F, 24% M) agreed that access to clean water was the first priority and 9% (n=9) and 11% (n=11) in both neighbourhoods thought solid waste management was the second priority. One major issue in wastewater and stormwater management in Al-Matahin neighborhood causing flooded residents during the rainy seasons was not included in the activities of the project but was identified in the baseline study. It was also found that supplying the neighbourhoods with the selected 1m<sup>3</sup> plastic garbage containers, although useful to an extent, was not fully in line with the needs of the neighbourhoods as the municipal authorities lack the proper vehicles to unload the containers which prohibited using the full potential of them.

The feedback mechanisms - the hotline phone number- was not well-known to the residents, but the interaction with the project's staff was continuous through work supervisors, mukhtars and telephones as revealed in the focus group discussions.

The project had a sustainable impact on the neighbourhoods through rehabilitation of the water networks, providing a better water quality through preventing future contamination caused by leaks in the system, according to the involved authorities. Also, the skills acquired through the hygiene promotion sessions and the training for cash for work programme will continue to be of use according to the respondents of the survey. Also, repairing the three garbage collection tractors that belong to the authorities allow for the collection of the garbage from the collection points neighborhoods. The focus group discussions, revealed that the cleaning campaigns raised the hygiene level and actively involved the residents to improve the hygiene practices and the training for the cleaning campaigns team equipped the workers in the cleaning campaigns with the knowledge necessary to identify hazardous objects such as explosives and mines, and the methods to deal with them when they are encountered.

## Introduction

CARE's interventions targeted highly prioritized areas in need of installation and rehabilitation of water supply systems through engaging the DoW, and community representatives in addressing critical needs for water services in West Mosul. The local authorities are currently overwhelmed by the scale of needs and require support from humanitarian agencies, as a direct contribution to enabling affected populations to return home. The project will directly repair two vital water pipe networks in the Al-Matahin and Al-Islah neighbourhoods in West Mosul and support the municipal authorities to build their capacity to eventually recover their costs, once the situation allows. Also, the project will mobilize local communities towards greater ownership in respect of sustainable provision of clean water for drinking, cooking and personal use, contributing to reduction of water related diseases. The project will further support cleaning campaigns and removal of solid waste with close coordination with the Municipal authorities, by providing 1 m<sup>3</sup> plastic waste containers at designated locations and engaging communities through sensitization endeavors to raise their appreciation on the need to maintain a clean environment while providing the requisite gear and cleaning tools such as wheel barrows, rakes, etc. In addition to that, two waste collection vehicles owned by the Municipality will be repaired as a sustainable solution for removing the solid waste.

With this project, CARE addressed three critical gaps in water rehabilitation systems and services in West Mosul by:

- Rehabilitation of water supply system,
- Solid waste management,
- Community engagement through establishing hygiene volunteers and water committees.

## Objectives of the project

- To provide vulnerable women, men, boys and girls in conflict-affected, underserved and epidemic-prone communities in Al-Matahin neighbourhood in West Mosul with equitable and sustainable access to clean water
- To improve civic participation of local residents in Al-Matahin neighbourhood West Mosul with respect to solid waste management and hygiene practices and provide conflict affected men, women, boys and girls with access to clean environment.

## Endline evaluation objectives

The endline evaluation sought to analyze the endline values for key WASH indicators as stated in the project documents in the targeted areas and to provide an information to assess an activity's impact and effectiveness, relevance and sustainability of the project after the implementation as well as the effectiveness of programming to successfully track accomplishments of the WASH project against the benchmark figures established during the baseline survey. Team focus on areas of success as well as challenges faced by each activity in both locations. The team collected quantitative and qualitative data in order to analyze what underpins success and challenges in programming. More specifically, the evaluation looks at the following evaluation questions:

### Effectiveness and efficiency

- To what extent did the project meet the expected targets for outcome indicators (outcome and output indicators)? Why were some targets not met, if any?
- Assess performance of the project in terms of effectiveness, efficiency, and timeliness of producing the expected outputs;

### Coverage and appropriateness

- To what extent do all individuals regardless of age, gender and ability have access to improved water supply and hygiene practices?
- To what extent did the project meet WASH needs? Are there any WASH issues that still need to be taken into consideration for the future projects?

### Impact

- To what extent did the community's knowledge, attitude, practice and beliefs regarding water, sanitation and hygiene have evolved since the beginning of the project? What are the barriers in the uptake of key health, hygiene and sanitation practices, if any?

## Methodology

### Desk Review

The unstructured desk review analyzed internal and external documents to allow the evaluation team to better understand the context, to draw on the knowledge gained from previous evaluations or research, draw on the knowledge captured in project monitoring documents, identify potentially key issues for later fieldwork, and identify potential judgement criteria, sources, and methods for the evaluation matrix. The evaluation team leader was responsible for the desk review which included the cash for work beneficiaries lists and work schedules, hygiene promotion logs and water quality tests.

### Household surveys

A simple random sampling method used among Al-Matahin and Al-Islah neighbourhoods. The sample size for the household survey calculated using a 9% margin of error and a confidence level of 95% of the total population per each location as stated in Table 1. Female headed-households, child headed-households, households with elderly people, households with many dependents and households with people with disabilities prioritized because they have been identified as particularly vulnerable.

Table 1: Quantitative survey sample size versus the number of households in both neighbourhoods.

Location	Total populations	Sample size
Al-Matahin neighbourhood	1025 HHS	100 interviews
Al-Islah neighbourhood	1000 HHS	101 interviews
	Total	201 HH interviews

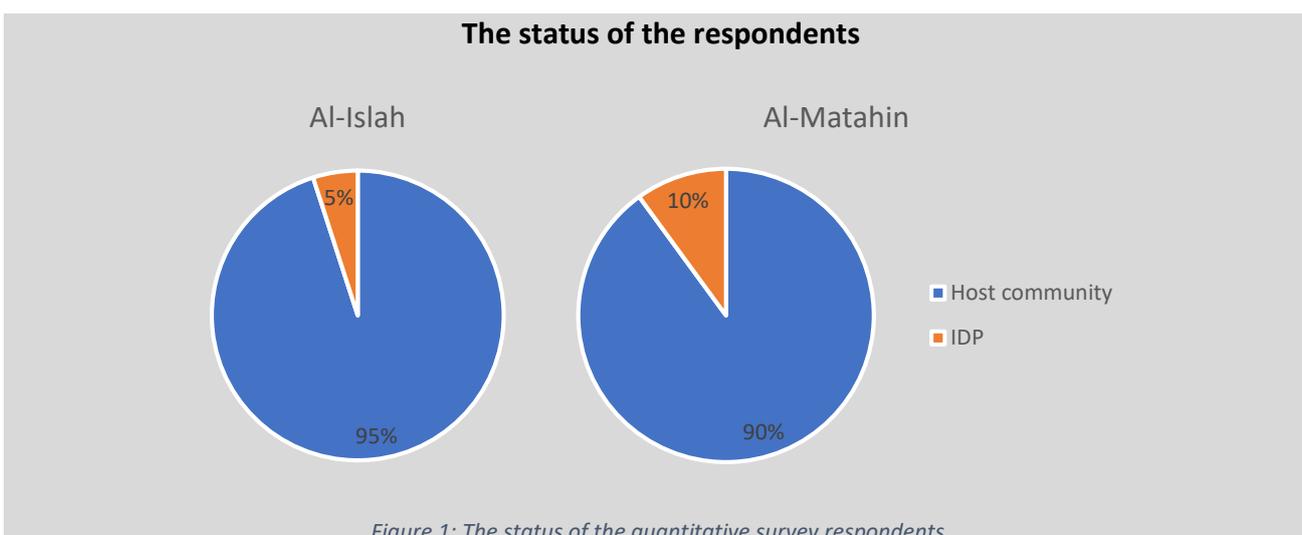
The survey was conducted by 6 enumerators (4 F, 2 M) whom received training on conducting the surveys using the Kobo Collect survey tool on tablets. All of the enumerators were native Arabic speaking from Mosul city, three of them were residents of West Mosul.

The survey plan aimed for a gender-balanced sample, however, due to job commitments of the men, the distribution shifted towards a higher percentage of female respondents with about roughly double the number of males. Also, the majority of the respondents were in the 18-59 years old (see Table 2).

Table 2: Gender and age distribution of the survey sample, percentages of total number of respondents.

Age Group	Al-Islah						Al-Matahin					
	Female		Male		Total		Female		Male		Total	
Adult (18 - 59)	64	31.8%	30	14.9%	94	46.8%	59	29.4%	34	16.9%	93	46.3%
Elderly (Over 60)	4	2.0%	1	0.5%	5	2.5%	3	1.5%	3	1.5%	6	3.0%
Child between (12-15)	2	1.0%	-	-	2	1.0%	-	-	1	0.5%	1	0.5%
<b>Total</b>	<b>70</b>	<b>34.8%</b>	<b>31</b>	<b>15.4%</b>	<b>101</b>	<b>50.2%</b>	<b>62</b>	<b>30.8%</b>	<b>38</b>	<b>18.9%</b>	<b>100</b>	<b>49.8%</b>

Nearly 95% (n=96) and 90% (n=90) of the respondents in Al-Islah and Al-Matahin respectively were from the host community, only about 5% (n=5) of the respondents Al-Islah and 10% of them in Al-Matahin were IDPs, since west Mosul had the larger share of the armed conflict and destruction and it was not the destination for high numbers of displaced persons.



## Focus group discussions

To obtain qualitative data from the communities from the target neighborhoods, focus group discussions were conducted with community members. Two focus groups were formed in each neighbourhood for men and women separately. Each focus group session was led by a facilitator and a note-taker.

## Key informants' interviews

Seeking to maximise efficient use of resources, the evaluation team undertook high-level stakeholder KIIs, such as; directorate of water, municipality and Mukhtars. The key informant Interview were done through the usage paper-based surveys with the consent of respondents. The major questions fed with more probing questions to gather more information on the relevant indicators and to align the statements as structured and planned. After collection of the information the enumerator ensured verbatim of the transcripts, which was further given to the team lead, who refined the transcripts and share it for data analyst who coded the data accordingly and develop summaries to incorporate parts in the final report. In this technique the respondents explained their perspective about the relevance, effectiveness, efficiency, impact and sustainability of services to be provided by the project.

Key persons were interviewed during this study for assessing the relevance and efficiency of the interventions, these included:

- Water Maintenance Directorate of West Mosul.
- Al-Rabee' Municipality Sector in West Mosul.
- Mukhtars of Al-Islah and Al-Matahin neighborhoods.

## Limitations

Although the study team aimed for an even gender distribution in the study group for the quantitative survey, but it was challenging due to the fact that the majority of males were outside their homes for work. Thus, survey responses are mainly from females (over 60%).

## Results and analysis

Analysis of results are divided into two main sections: the first section presents the extent to which indicators of the project are achieved; and the second part depicts the project's activities.

### Project indicators

The final evaluation concludes that project reached 114% (6,000 planned & 6,814 achieved) of the expected targets during the project implementation. The evaluation team is confident the CARE's intervention men, women, boys and girls in both neighborhoods adapt improved environmental and water hygiene practices (Outcome 2) and decrease of illness linked to poor water quality and environmental pollution (outcome 1). Men, women, boys and girls also have improved access to information about hygiene in the targeted area.

**Project goal: 70% survey respondents report decrease of illness linked to poor water quality and environmental pollution in target neighbourhoods compared to baseline**

In order to measure the project goal indicator, the respondents in both neighborhoods were asked about the illnesses in their households in the past 4 weeks that are commonly caused by poor water quality or environmental pollution.

The following four illnesses were considered the most common that are caused by poor water quality and environmental pollution:

1. Prevalence of diarrhea (poor water quality)
2. Skin deasses (environmental pollution)
3. Dysentery (poor water quality)
4. Malaria (environmental pollution)

Evaluation findings support that only about 15% (n=15) and 12% (n=12) in Al-Islah and Al-Matahin respectively reported cases of prevalence of diarrhea and a smaller percentage (7% (n=7) and 3% (n=3) in Al-Islah and Al-

Matahin) reported skin illnesses (see Figure 2) in other words, on average 81% in both Al-Matahin and Al-Islah respondents reported that they did not suffer from illnesses linked to poor water quality and environmental pollution.

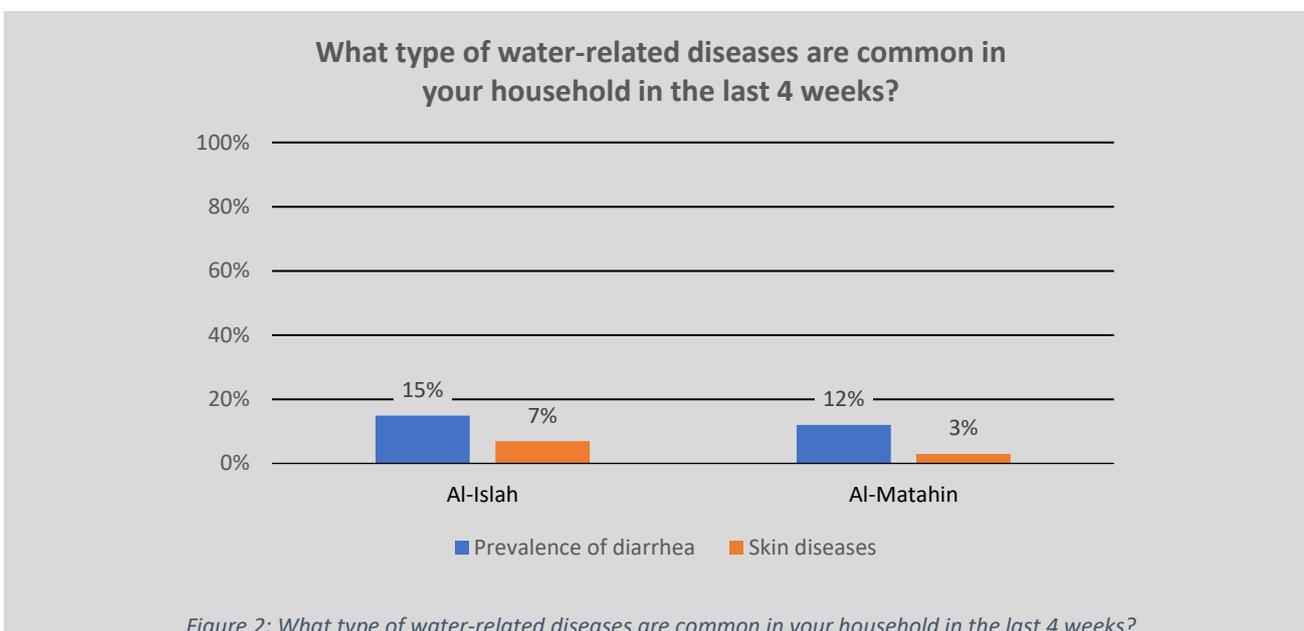


Figure 2: What type of water-related diseases are common in your household in the last 4 weeks?

Since there were no numbers of cases in the baselines study of the project, statistics were collected from the closes public health care centers (PHCCs), Salah-Alddin in Al-Islah and Al-Shabkhon, 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. The figures collected from the PHCCs are found in Table 3.

Table 3 Number of visitors with water-related illnesses in the closest public health centers to Al-Islah and Al-Matahin neighborhoods.

	No. of cases in the local PHCC	
	Al-Islah (Salah-Alddin PHCC)	Al-Matahin (Al-Shabkhon) PHCC
<b>July 2019</b>	None	4
<b>August 2019</b>	None	6
<b>September 2019</b>	None	No data available
<b>October 2019</b>	None	3
<b>November 2019</b>	None	None

While it was challenging to quantify this indicator, the PHCC data in Al-Matahin does indicate that there were no cases admitted during November 2019, which is the month all network construction works were completed, moreover, all of the focus group discussions participants agreed that the project has indeed contributed in reducing illnesses through water supply and hygiene promotion.

**Outcome 2.2: 70% of men, women, boys and girls in both neighborhoods adapt improved environmental and water hygiene practices.**

In order to measure this outcome indicator, a mechanism is put in place to measure under which the overall calculation is based on the respondent’s improved environmental and water hygiene practices in the last 4 months. The following questions are considered to measure the environmental and water hygiene practices at household level through direct and indirect observation of enumerators

**Household waste containers index**

The household waste containers index aims to find out if the households are implementing improved hygiene practices with regard to waste management, through observing the conditions of the household waste bins and the cleanliness of the neighbourhood. The questions that the enumerators had to answer are listed in Table 4.

Table 4: 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 = un hygienic, 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 neighborhood<sup>1</sup>?</i>
Yes, (0 point)	1. In front of house (0 points)	Yes, a lot ( 2 points)
No, (1 point)	2. Public bins in the neighborhood (1 point)	Yes, some (1 point)
	3. no bins available in the neighborhood (2 points)	No, (0 point)

The majority of the surveyed households were in the range of unhygienic and very unhygienic practices with almost 95% (n=96) in Al-Islah and about 86% (n=86) in Al-Matahin (See Figure 3). This 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 64% (n=65) and 79% (n=79) in Al-Islah and Al-Matahin respectively, see Table 5) which further deteriorate the hygiene situation.

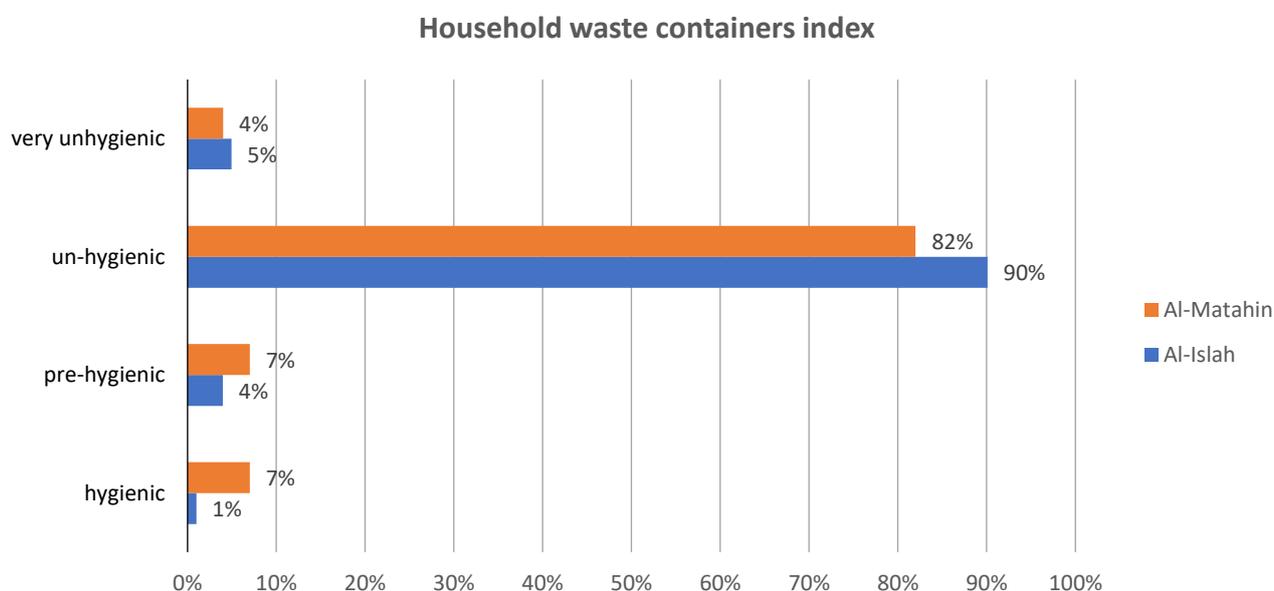


Figure 3: Household waste containers index based on the observation of the enumerators.

<sup>1</sup>The 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.

Table 5: Is garbage being collected often enough by the municipality?

Is garbage being collected often enough?	Al-Islah		Al-Matahin	
Yes	36	36%	21	21%
No	65	64%	79	79%

## Hygienic Latrine Index

To assess the extent of the proper latrine hygiene practices, the scores for observations of latrines is collected based on (Table 6), which include some indicators such as the smell or excreta or urine, existence of fecal matter on the ground, existence of flies or other insects and finally the respondent is asked whether a functional septic tank exists and has a reasonable capacity.

Table 6 Hygienic Latrine Index based on the surveyor's observation

Hygienic latrine index based on the surveyor's observation			
Hygienic latrine:	0 = hygienic, 1 = pre hygienic, 2 = un hygienic, 4 = very unhygienic		
Bad smell? 1 point	Fecal matter on the ground? 1 point	Flies? 1 point	No septic tank 1 point

With the improvement of the water supply conditions, only a small percentage (around 10%) of the households in each neighborhood had un-hygienic latrine practices (Figure 4). According to the informants in the neighbourhoods believe that residents come from different backgrounds and some people require a longer time to change their hygiene practices.

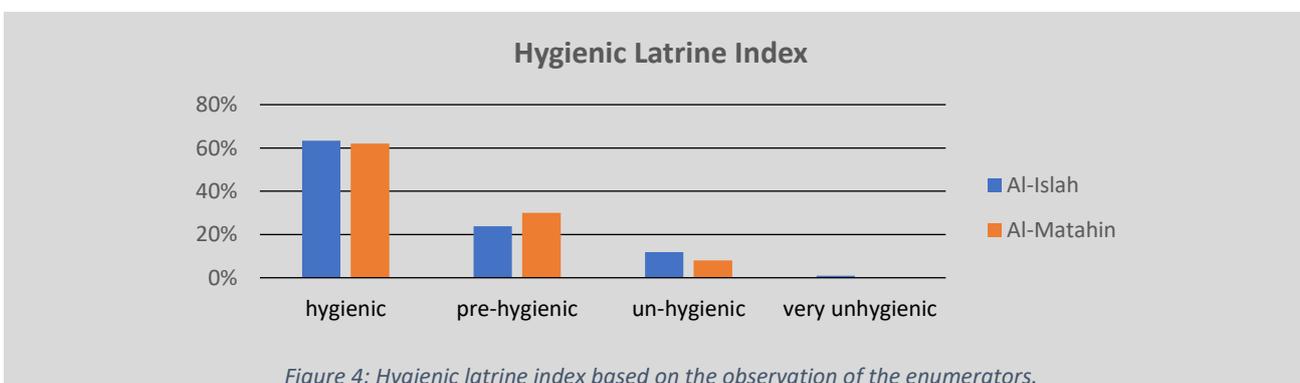


Figure 4: Hygienic latrine index based on the observation of the enumerators.

## Water Storage Container Index

Water storage containers or tanks being one of the potential sources for illnesses when contaminated, a set of observation were put in place according to Table 7, which are based on whether the container is covered, has visible dirt or debris, place on the floor (prone to rust and leaks) or with an opening larger than 10 cm which may invite contaminants and possibly animals or birds.

Table 7 Water Storage Container Index based on the surveyor’s observation

Water Storage Container Index based on the surveyor’s observation			
0 = hygienic, 1 = pre hygienic, 2 = un hygienic, 4 = very unhygienic			
Open Container? 1 point	Dirty? 1 point	Placed on floor? 1 point	With wide mouth larger than 10 cm 1 point

About 12% (n=12) of the household in Al-Islah were adopting unhygienic practices with regard to water storage versus 15% (n=15) in Al-Matahin (Figure 5) mainly due to uncovered containers, also, commonly the water tanks in the area has a wide opening.

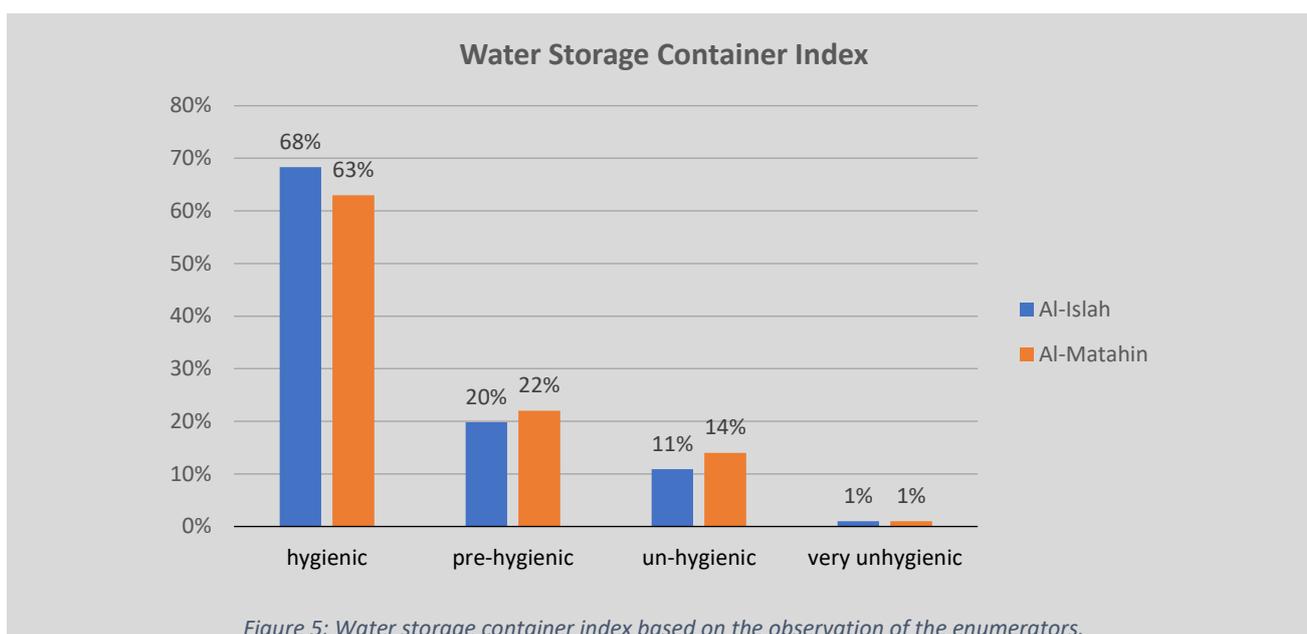


Figure 5: Water storage container index based on the observation of the enumerators.

Based on the results obtained through the above indices, the project was able to improve 2 out of the 3 hygiene practices to the desired level. More interventions might be necessary to improve the solid waste management in the neighborhoods by distributing garbage bins to households, or encourage them to obtain those, in parallel work with the municipality to allow access for garbage collection trucks (which currently only collects from the main roads only). Another possible suggestion is providing larger containers which the municipality’s vehicles can collect.

**Output indicator 1.1.1: Water supply system in Al-Matahin neighborhood in West Mosul is rehabilitated and functional.**

In order to measure the above outcome indicator, the respondents are asked about the functionality of the water supply system in their neighborhoods. The following 3 elements are defined as functionality of water supply system: water quality, water quantity and water storage. To assess the status of the three elements, several questions were asked on the household level, and the responses are found in (

While the water supply in Al-Matahin is continuous as they are connected to a main water pipe, some of the alleys had lower water pressure than the rest due to the topography of the area, therefore only 68% (n=68) say that the water is sufficient for all needs, the reminder do not think the water is sufficient for all needs, most probably due to the low water pressure in their areas.

In Al-Islah the supply is not continuous as most of the neighbourhoods in Mosul due to the scheduled supply system and the storage is essential for the needs of the household, therefore, around 74% (n=75) think that the water supply is sufficient for all needs.

Table 8)

About 90% (n=91) in both neighborhoods (62% F, 28% M in Al-Islah and 56% F, 34% M in Al-Matahin) think that the supplied water is good for drinking.

While the water supply in Al-Matahin is continuous as they are connected to a main water pipe, some of the alleys had lower water pressure than the rest due to the topography of the area, therefore only 68% (n=68) say that the water is sufficient for all needs, the reminder do not think the water is sufficient for all needs, most probably due to the low water pressure in their areas.

In Al-Islah the supply is not continuous as most of the neighbourhoods in Mosul due to the scheduled supply system and the storage is essential for the needs of the household, therefore, around 74% (n=75) think that the water supply is sufficient for all needs.

Table 8 Respondents' attitude towards the quality of the supplied water supplied.

Respondents' attitude towards the quality, quantity and storage of the supplied water		Al-Islah				Al-Matahin			
		Female		Male		Female		Male	
<b>Water quality</b>	Good for drinking	63	62%	28	28%	56	56%	34	34%
	Concerned about the quality for drinking	5	5%	3	3%	5	5%	4	4%
	Not good for drinking, good for other household uses	2	2%	-	-	1	1%	-	-
<b>Water quantity</b>	Sufficient for all needs	46	46%	29	29%	36	36%	32	32%
	Sufficient for the household needs including washing clothes etc.	19	19%	1	1%	16	16%	5	5%
	Only sufficient for the basic needs (bathing, handwashing)	3	3%	1	1%	7	7%	-	-
	Insufficient (water is short)	2	2%	-	-	3	3%	1	1%
<b>Water storage</b>	Sufficient for all needs	63	62%	28	28%	46	46%	34	34%
	Sufficient for the basic uses	5	5%	2	2%	10	10%	3	3%
	Insufficient	2	2%	1	1%	6	6%	1	1%

**Output indicator 1.1.2: 100% of water samples tested and meet SPHERE Standards (free residual chlorine - FRC ranges between 0.3 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).**

All tested samples pre (October 2019) and post (November 2019) the interventions read an acceptable residual chlorine level and 0 coliforms and E. coli. The only noticeable change in the quality of water is a reduction in turbidity of about 60% and a slight raise in the pH (about 10%). The samples were collected by the CARE's WASH team at random spots throughout the neighborhoods.

**Project Activities: Water infrastructure, cleaning campaigns and hygiene promotion**

**Relevance of the interventions**

**Evaluation question:** Was the intervention chosen in line with local priorities and were the interventions being the most appropriate and relevant for the project, taking into account the operational environment and the overall context?

The baseline study for this project identified a number of high priority problems related to water, sanitation and hygiene that are such as scarcity of water supply in some areas, poor solid waste management, and the lack of awareness on hygiene and health issues.

To reinforce these findings, the residents were asked about the WASH-related needs WASH-related service from the beginning of 2019 prior to the interventions in order to assess their relevance. It was found that about 74% (n=75) (60% F, 14%M) in Al-Islah and 65% (n=65) (41% F, 24% M) in Al-Matahin agreed that the most needed service was a better, cleaner water supply, followed by safe garbage disposal at 9% (n=9) and 11% (n=11) at Al-Islah and Al-Matahin respectively (see Figure 6).

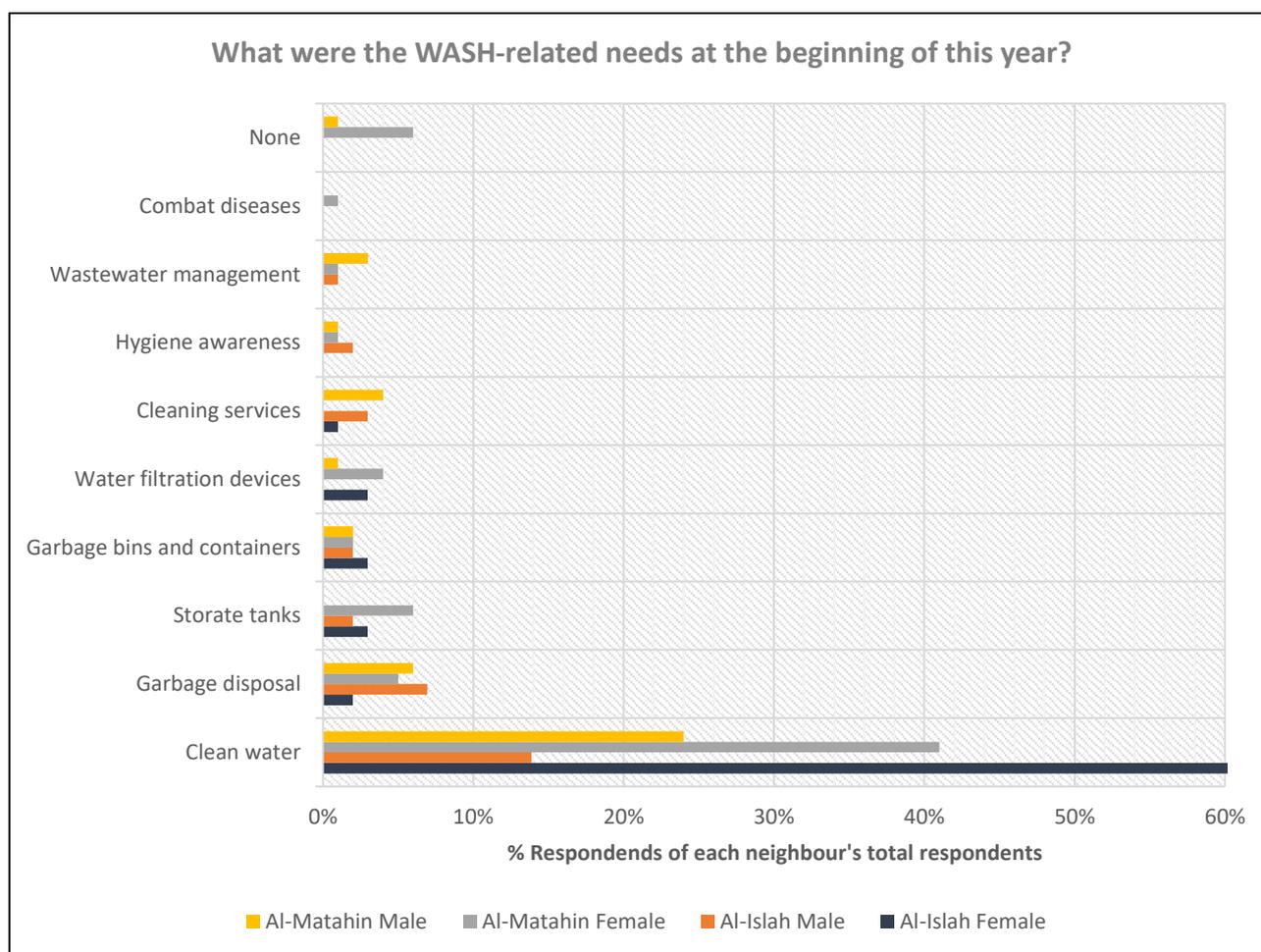


Figure 6: What were the WASH-related needs at the beginning of the year 2019?

The other needs revealed during the FGDs in Al-Matahin, was the stormwater management, as some of the homes get flooded during the rainy season and block access completely. The stormwater also floods the septic tanks and the flooded water becomes a serious health hazard in the neighbourhood. The need for stormwater/wastewater management was identified in the baseline study but not included in the design of the project.

Comparing these findings to the responses to the question (How did CARE assist you during the past six months?), 81% (n=82) (62% F, 19%M) in Al-Islah and 79% (n=79) (55% F, 24% M) responded that CARE interventions have supplied them with drinking water or enhanced it (Figure 7), keeping in mind that the water network was not replaced entirely in the neighbourhoods.

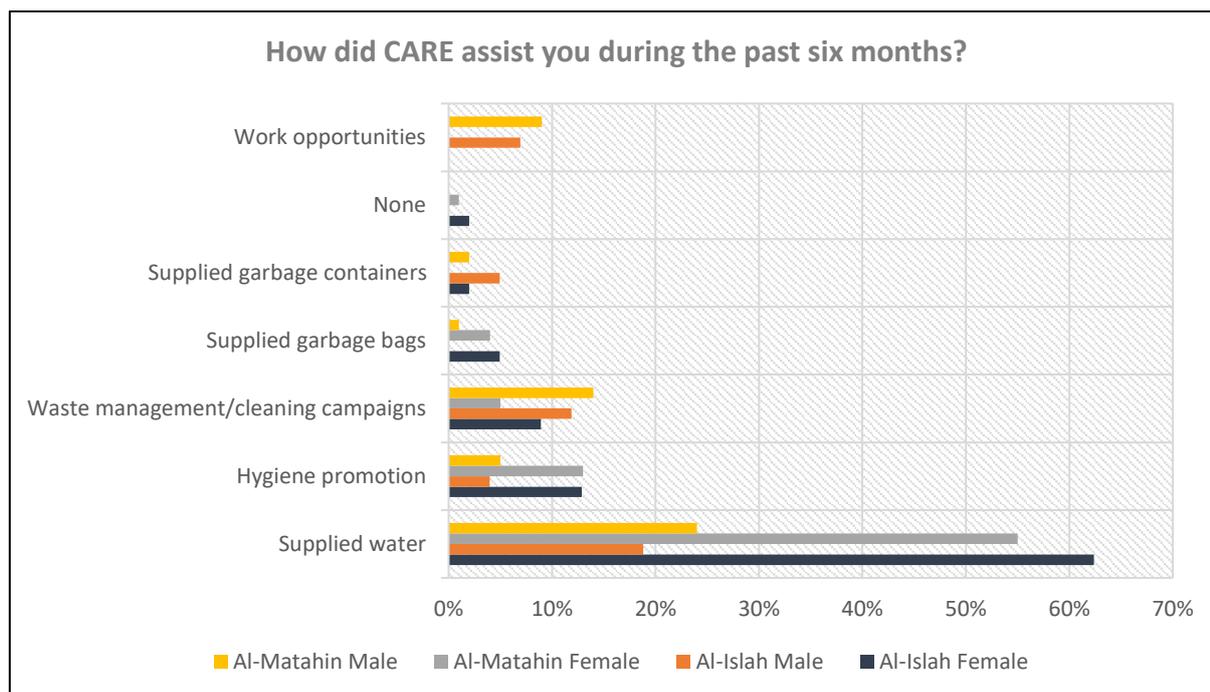


Figure 7: How did care assist you during the project period?

According to the Head of Water Maintenance Directorate of West Mosul Water, the networks to be renovated and expanded were selected in coordination with their Directorate and were in line with the current and future needs of the neighborhoods. With regard to the waste management, the Head of the Al-Rabee' Municipality Sector were satisfied with repairing the three tractors that are working in the two neighbourhoods, however, he believed that larger, 16-foot, metal container could have served the area better instead of the distributed plastic waste containers which they currently have only very limited vehicles that are equipped to unload them into their trucks.



Figure 8 Existing 3-ton 16-foot-long garbage metal container in Al-Matahin.

## Effectiveness

**Effectiveness: To what extent did the project meet the expected targets for the indicators? Why were some targets not met, if any?**

*The majority of the indicator targets are fully achieved, 82% (22 out of 27) indicators are 100% or above, and four indicators are partially achieved, the project did not fail to achieve any the indicators (See*

Table 9), however, one main indicator was not fully measured due to lack of data. Annex A, provides a detailed the list of indicators for baseline and endline.

*Table 9: Result of the indicators achievement.*

✓	Target is reached (100% or above)	82%	22 indicators / 27
○	Target is partially reached (50-100%)	15 %	For 4 indicators / 27
✗	Target is not reached (0-50%)	None	For 0 indicators / 27
?	Data not available to draw conclusion	3%	For 1 indicators / 27

Nearly 91% (n=92) (63% F, 28% M) in Al-Islah and 92% (n=92) (60% F, 32% M) were satisfied with the interventions in their areas (Figure 10). The remainder 9% and 8% of the respondents were not satisfied mainly due to some side-effects of water network rehabilitation works, the main complaints were that some of the areas had lower water pressure in the system after the network extension (specially in Al-Matahin) since the main feeding pipe capacity was not increased, the other complaint was about the quality of the work of the contractor and some other respondents did not get access to water through the new network and still used the existing network. These complaints were found in both neighborhoods.



*Figure 9 Some households in Al-Matahin started installing water pumps to be able to store water in the tanks on the roof.*

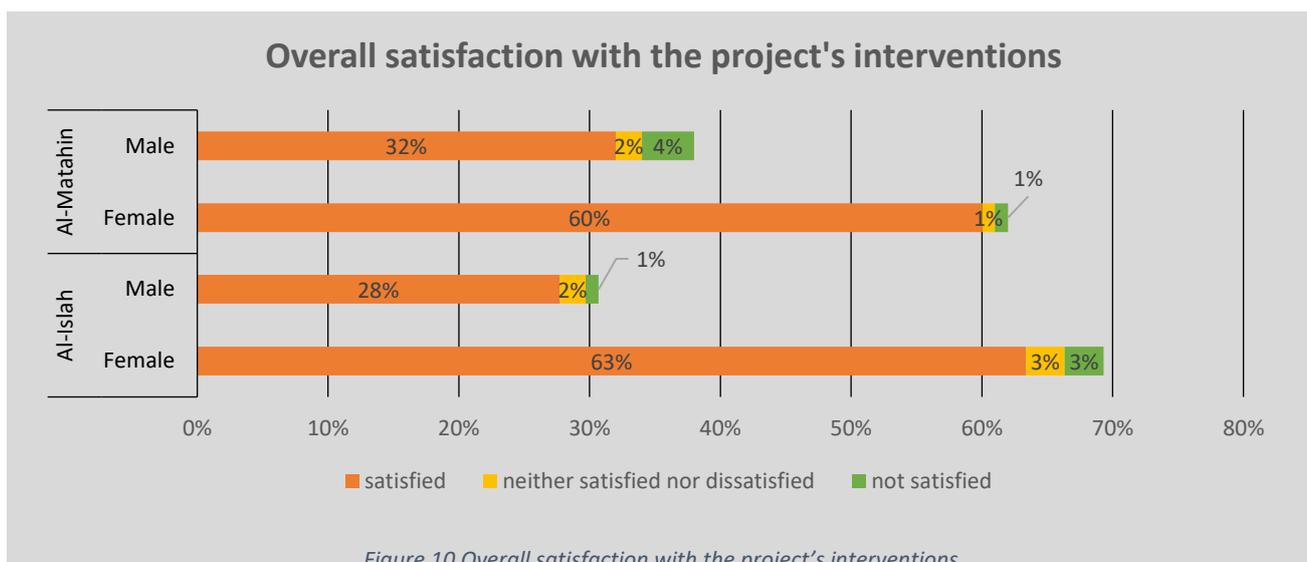


Figure 10 Overall satisfaction with the project's interventions.

The government key informants stated that this type of small-scale projects reduce the current load on the government and are welcomed specially if the coordination with them is strong from the inception phase of the project.

### Efficiency

To evaluate the efficiency of the project interventions, the respondents were asked directly about the efficiency of the water network rehabilitation works, 94% (n=95) of Al-Islah respondents and 97% (n=97) of Al-Matahin respondents thought that the works were completed efficiently compared to similar projects that they have had experience with (Figure 11). The remaining respondents had two main complaints: the quality of the contractor's work was not good especially with regards to repair work that the areas they had excavated were left for the residents to mend or delayed for a long period of time; and the fact that the water pressure was reduced in some of residences due to the increased load on the network from the new residents and unfavorable land slope conditions, with the feeding main pipes remaining the same without increasing their capacity (pipe diameter and water pressure).

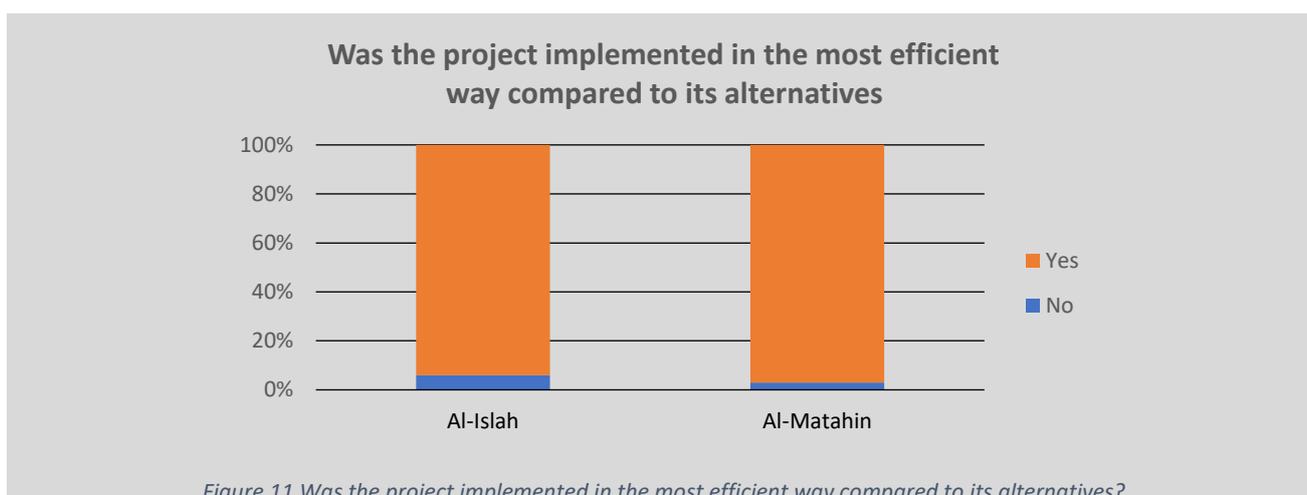


Figure 11 Was the project implemented in the most efficient way compared to its alternatives?

Through the interview with the head of the DoW, it was revealed that the execution of the project, with regard to the rehabilitation of the water network, was efficient with the exception of minor setbacks due to the objection of a number of beneficiaries to modifying the network due to various reasons such as losing pressure in the system.

## Accountability and Sustainability

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**Question:** Which aspects/components of the interventions implemented have contributed to connectedness to longer-term interventions and sustainability beyond the project period and Are skills gained/inputs provided by the project likely to continue being used after the project closure?

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According to the DoW, the new network is a sustainable solution for the neighborhoods, as it provided access to water for the residences with no proper water access and replaced the older metal pipes which are prone to corrosion and may eventually cause skin illnesses and other health issues when they eventually leak.

Three tractors that belonged to the Municipality were repaired to allow for the collection of the garbage from the neighborhoods, however, it seems that the workers are unable to effectively unload the purchased containers into the tractors. As a result, the municipality has moved some of the containers to other neighborhoods where the specialized garbage trucks are in operation and capable of unloading the containers.

Through the focus group discussions, it was evident that the cleaning campaigns raised the hygiene level and got some of the residents to work even as volunteers and participated in improving the hygiene practices. And the training for the cleaning campaigns team equipped the workers in the cleaning campaigns with the knowledge necessary to identify hazardous objects such as explosives and mines, and the methods to deal with them when they are encountered.

A WASH committee is formed in both neighbourhoods and they had received a one-day training, but the committee was not involved in any subsequent activities.

Also revealed during the FGDs, the information and skills obtained through the hygiene promotion are being actively used and will be useful in the long run.

On the accountability aspect, according to 59% (n=59) (50% F, 9%M) of Al-Islah respondents and 55% (n=55) (33% F, 22% M) of Al-Matahin respondents, the preferred method of providing feedback and complaints is via the hotline of the organization being the most convenience and privacy-protecting mean, the reminder prefer to provide the feedback through the mukhtars or the work supervisors (Figure 12).

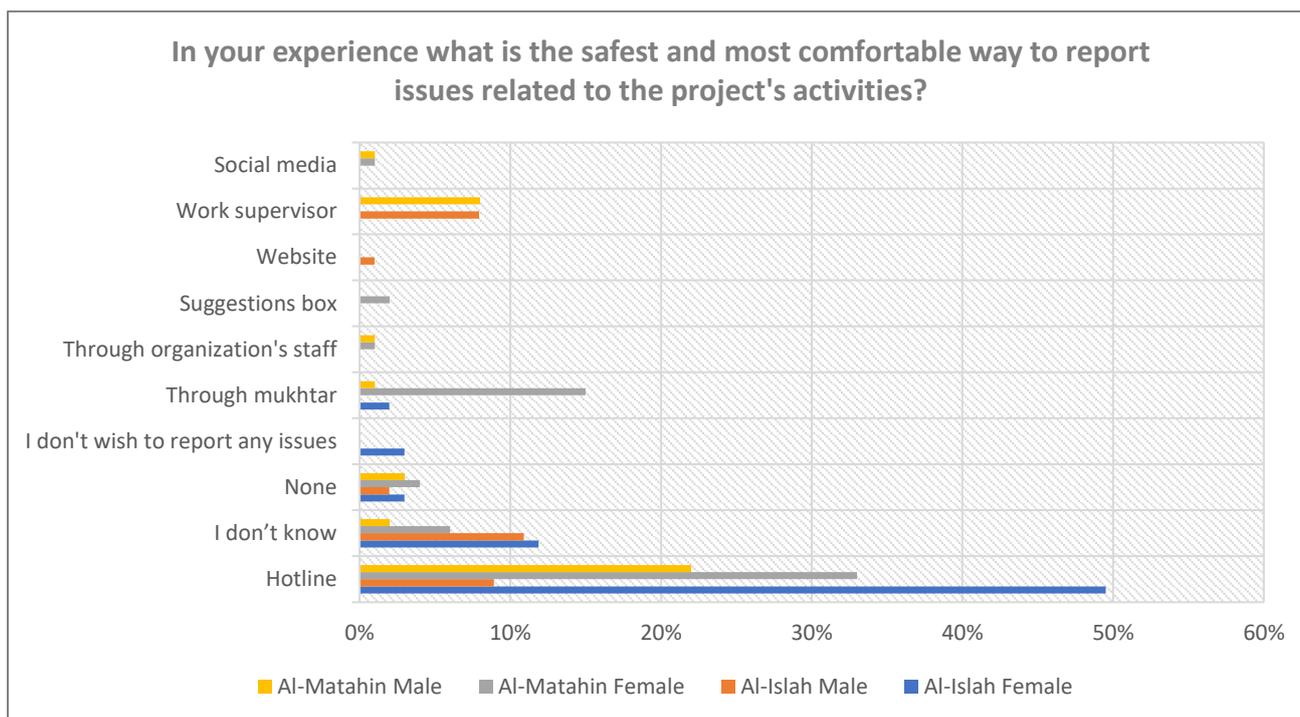


Figure 12: In your experience what is the safest and most comfortable way to report issues related to the project's activities? Respondents had the option to select more than one method.

The FGDs revealed that most of the residents did not know the hotline number of CARE, however they interacted with the project’s staff directly through phones and through mukhtars and work supervisors.

### Cleaning campaigns through cash for work

From the point of view of the CFW beneficiaries were asked about their satisfaction level with the service provided to them, in Al-Matahin all of the respondents were satisfied, but in Al-Islah about 20% (n=2) of them thought that the work duration was too short and preferred a longer engagement in work (Figure 13).



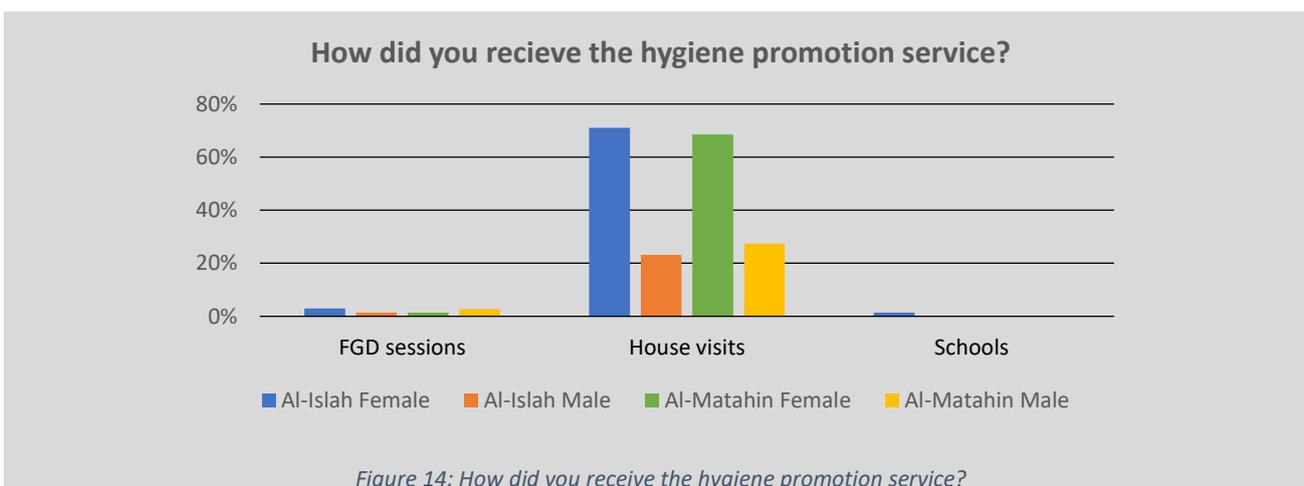
Figure 13 How satisfied are you with the cash for work opportunities provided to you?

The selection criteria for the CFW activity was not entirely clear to the beneficiaries, about 28% (n=7) were not sure what the criteria were, and the majority of the rest thought that the opportunity was provided to persons with no or low income and only a few of them thought that competence was the main criteria for selection and all of them agreed with the criteria. About 50% of respondents thought that the other beneficiaries did not know the criteria, however almost all of them shared the opinion that the persons that needed the job the most have been selected.

About 72% (n=8) and 50% (n=7) of the respondents in Al-Islah and Al-Matahin respectively were not aware about the complaint mechanism in case they have issues with the CfW activity or the other activities of the project.

## Hygiene promotion

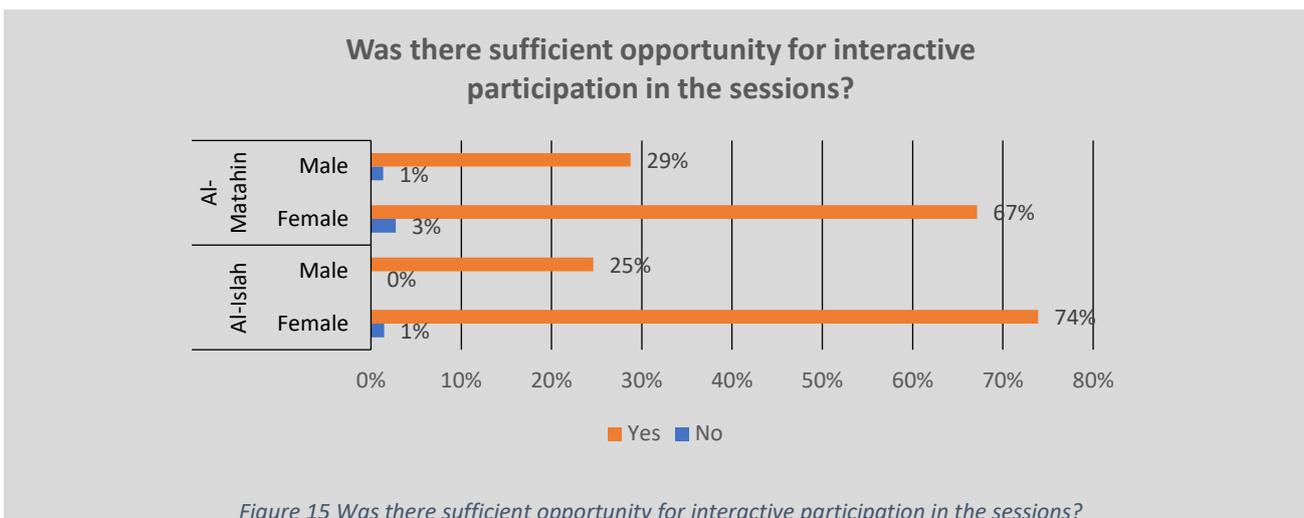
About 69% (n=142) (50% F, 19% M) of the respondents from both neighborhoods participated in the hygiene promotion sessions or benefited from house visits. All except one respondent were satisfied with the hygiene promotion service. The most common hygiene promotion service delivery method was house visits for about 95% of the respondents, followed by a small percentage of focus group discussion sessions.



The vast majority of the respondents agreed that the topics delivered were useful and the most useful topics were as in the list below, sorted by the most useful to least useful:

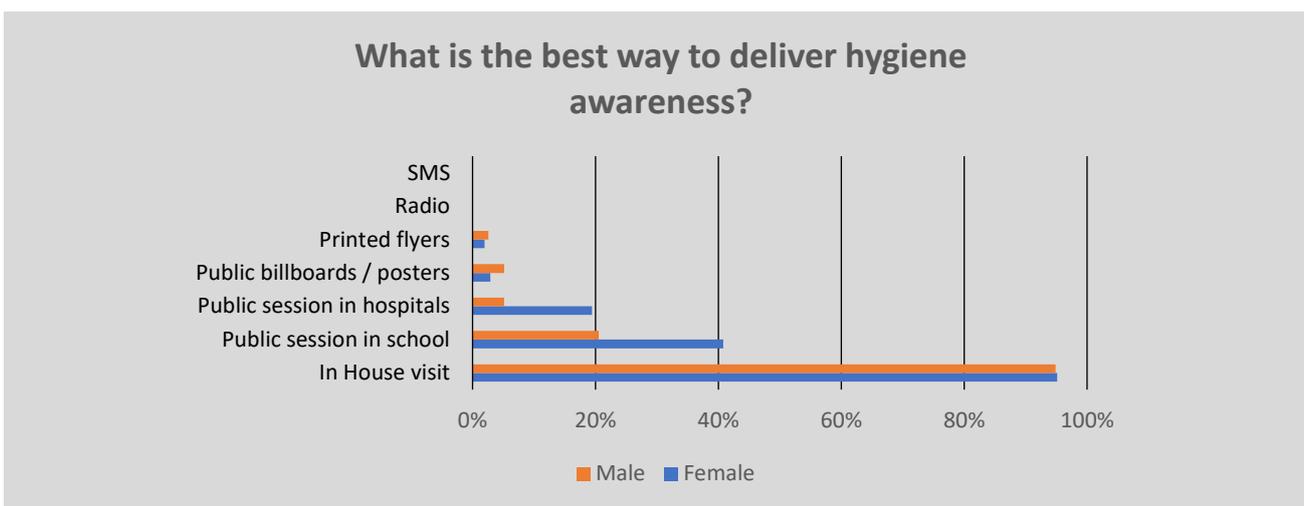
- Personal hygiene
- Illnesses and lice
- All house visits
- Solid waste management
- Skin diseases
- Water management
- Explosive remnants of war

Almost all of the respondents thought that facilitators were well prepared and knowledgeable about the topics they delivered. About 3% (n=2) in Al-Islah and 1% (n=1) in Al-Matahin did not get answers to their questions on the topics. The majority of the respondent had the opportunity for interactive participation in the hygiene promotion sessions except 1% (n=1) (F) in Al-Islah and 4% (n=3) (3% F, 1% M) in Al-Matahin (See Figure 15).



Only about 2% of the participants in the hygiene promotion session did not recall any of the topics delivered to them.

People seem to prefer house visits as about 95% (n=135) of males and females voted for the house visits, followed by the second favorite public sessions in schools (30% F, 6% M), see (Figure 16).



*Figure 17 The streets in Al-Matahin (Left) and Al-Islah (Right) are generally clean.*

## Conclusions and Recommendations

- The rehabilitation/extension of the water network served the areas that were lacking water supply, however that has reduced the water quantity in other areas (some of them significantly).
- The rehabilitation of the network will have long-term health benefits by reducing problem caused by metal corrosion and contamination related to leaking pipe fittings. It also has a positive impact in reducing the maintenance load on the authorities as the old network needed frequent maintenance.
- House visits as a method for hygiene promotion is the most preferred, as it saves the household members from the hassle of going to the session's location, which is usually time consuming. In addition, house visits allow for an enhanced privacy especially for women hygiene topics. Also, school sessions are desirable, as parents are relieved knowing that their children are receiving additional awareness at school with their peers.
- While the distribution of the 1 m<sup>3</sup> garbage containers had a positive impact, the Municipality lack the operational vehicles to unload the containers in the required frequency. In this stage, they suggest providing larger 16-ft iron containers that the Municipality has the means to collect.
- It is recommended that the selection criteria and mechanism for the CFW candidates to be well communicated to the candidates to demonstrate a better transparency in of the selection process.
- It is recommended that the feedback mechanisms be advertised at the early stages of the project's implementation. The most preferred mechanism was the hotline phone number.

## Annexes

### Annex A – project Logframe Matrix, Update November 2019

✓	Target is reached (100% or above)	✗	Target is not reached (0-50%)
○	Target is partially reached (50-100%)	?	Data not available to draw conclusion

	DESCRIPTION	INDICATOR	ENDLINE STATUS (NOVEMBER 2019)	RESULTS	DATA SOURCES, COMMENTS
<b>Goal</b>	To reduce the risks of waterborne diseases-related morbidity, mortality and malnutrition amongst vulnerable returnees and host communities living in West Mosul by increasing their resilience and access to safe drinking water and environmental sanitation services	1. 70% survey respondents report decrease of illnesses linked to poor water quality and environmental pollution in target neighbourhood in West Mosul in comparison to baseline.	The focus group discussions reported a drop in the water-borne illnesses and skin illnesses and the qualitative survey result show water related illnesses rate are currently are as low as 15%, however with the absence of baseline data and the absence of solid data from the public health centres in West Mosul, the evaluation team was not able to effectively measure this indicator.	?	Endline evaluation Nov. 2019
<b>Outcomes</b>	1. To provide vulnerable women, men, boys and girls in conflict-affected, underserved and epidemic-prone communities in Matahin neighbourhood in West Mosul with equitable and sustainable access to clean water	1.1 6000 of persons provided with sufficient and safe water for drinking, cooking and personal hygiene use.	<b>6,814</b> (3,344 F & 3,470 M) individuals are reached in Al-Matahin and Al-Islah neighbourhoods	✓	Project monitoring data
	2. To improve civic participation of local residents in Al-Matahin neighbourhood West Mosul with respect to solid waste	2.1. 6000 men, women, boys and girls benefit/live in a safe and clean environment.	<b>6,814</b> (3,344 F & 3,470 M) individuals are reached in Al-Matahin and Al-Islah neighbourhoods	✓	Project monitoring data

	DESCRIPTION	INDICATOR	ENDLINE STATUS (NOVEMBER 2019)	RESULTS	DATA SOURCES, COMMENTS
	management and hygiene practices and provide conflict affected men, women, boys and girls with access to clean environment.	2.2. 70% of men, women, boys and girls in Al-Matahin neighbourhood adapt improved environmental and water hygiene practices.	Estimated 66%		Endline evaluation Nov. 2019
Outputs	1.1 Rehabilitation of the water supply system is completed and provides safe clean water in sufficient quantity and quality for 6,000 vulnerable men, women, girls and boys residing in West Mosul dependent on the water pipe line. Al-Matahin residents have agency to address WASH-related issues in their community.	1.1.1 Water supply system in Al-Matahin neighbourhood in West Mosul is rehabilitated and functional.	100% completed		Endline evaluation Nov. 2019
		1.1.2. 100% of water samples tested and meet SPHERE Standards (free residual chlorine - FRC ranges between 0.3 - .5 mg/l, sample of 100 ml with 0 coliforms at HH and water points).	100% completed		Endline evaluation Nov. 2019 & DoW water test results.
		1.1.3. 2 Water management committees established and trained and meeting monthly to address water-related issues	Committee members in Al-Matahin and Al-Islah neighbourhoods 20 (50% female), they received the initial training, but no further meetings were conducted.		Endline evaluation Nov. 2019
	2.1 Women, men, girls and boys have improved access to safe environment	2.1.1. 6000 (F: 3120, M: 2880) people benefit/live in a safe and clean environment.	<b>6,814 (3,344 F, 3470 M)</b> individuals are reached in Al-Matahin and Al-Islah neighbourhoods.		Project monitoring data

	DESCRIPTION	INDICATOR	ENDLINE STATUS (NOVEMBER 2019)	RESULTS	DATA SOURCES, COMMENTS
	and neighbourhoods are free of solid waste.	2.1.2 16 clean ups campaigns conducted	18 clean ups campaigns conducted. 119% completed	✓	Project monitoring data
		2.1.3 30 (F: 52%) residents participate in cleaning campaigns and receive CFW.	127% (38) Complete (no female participants)	✓	Project monitoring data
		2.1.4. One garbage truck repaired	100 % Completed (3 garbage tractors repaired)	✓	Endline evaluation Nov. 2019
	2.2 Vulnerable men, women, boys and girls adapt good hygiene practices and show behavioural changes towards general hygiene and proper solid waste management.	2.2.1. 10 gender-balanced Community Health Volunteers trained	2.2.1 "100 % Completed. 10 CHV (5 F, 5 M). 2.2.2 "6,530 (3412 F, 3118 M)" individuals are reached in Al-Matahin and Al-Islah neighbourhoods through awareness raising sessions	✓	Training attendance records Project monitoring data
		2.2.2. 2500 residents (F: 52%) attend the 26 awareness sessions.		✓	
<b>Activities</b>	1.1.1. Installation and rehabilitation of water system networks in Al-Matahin neighbourhood.		Installation and rehabilitation of water system networks is been done in both Al-Matahin and Al-Islah.	✓	Project monitoring documents, certificate of completion, handover certificate from municipality and field observation checklist
	1.1.2. Establishing and training of 2 Gender balanced (50% female) WASH Management committees (WMCs)		One training in Al-Matahin and one in Al-Islah neighbourhoods 20 (50% female) committee members have been provided	✓	Training attendance records
	1.1.3. Water Management Committees meet monthly to address water-related issues.		20 (10 F, 10 M) committee members in both Al-Matahin and Al-Islah neighbourhoods	○	Training attendance records

	DESCRIPTION	INDICATOR	ENDLINE STATUS (NOVEMBER 2019)	RESULTS	DATA SOURCES, COMMENTS
	1.1.4. Monthly water quality monitoring over 3 months		66% Completed, October and November test results only		CARE in coordination DoW report results
	1.1.5. Conducting post-repair survey and data collection		50% completed. Regular data collection is been conducted and required data are captured		Project monitoring documents
	2.1.1 Identify cash-for-work beneficiaries in Al-Matahin neighbourhood		100 % Completed. (30 men CFW versus 30 planned) have been given opportunity.		Project documents and Endline evaluation Nov. 2019
	2.1.2 Safety training in UNMAS and MAG		Above 100 % Completed (1 planned versus 2 achieved)		Training attendance sheets
	2.1.3 Identify contractor for Al-Matahin neighbourhood clean-up and establish workplan in coordination with DoS		100 % Completed (1 planned contractor versus 1 identified)		Project documents
	2.1.4 Provide CFWs with cleaning tools and conducting cleaning campaigns.		100 % Completed		Project documents
	2.1.5 One garbage collection truck owned by the DoS are repaired to ensure garbage will be removed even after the project		above 100 % Completed (1 planned versus 3 achieved)		Project monitoring documents
	2.1.6 Post-clean-up survey and follow up		100 % Completed. This has been combined with endline evaluation		Endline evaluation Nov. 2019
	2.2.1 Selection and training of 10 (50% female) Gender balanced Community Health Volunteers (CHVs).		100 % Completed. ( 10 training planned versus 11 achieved)		Project monitoring documents

	DESCRIPTION	INDICATOR	ENDLINE STATUS (NOVEMBER 2019)	RESULTS	DATA SOURCES, COMMENTS
	2.2.2 CHVs trained in mobilisation and awareness using diverse communication methodologies		100 % Completed	✓	Project monitoring documents
	2.2.3 Trained CVHs deployed and deliver regular community hygiene promotion (water, environmental hygiene) and solid waste management messaging.		100 % Completed	✓	Project monitoring documents

## Annex B – Water Quality Tests



