

# Research Terms of Reference

Mosul City Water Services Assessment

IRQ2305

Iraq

May 2023

V1

**IMPACT** Shaping practices  
Influencing policies  
Impacting lives

## 1. Executive Summary

<b>Country of intervention</b>	Iraq		
<b>Type of Emergency</b>	<input type="checkbox"/> Natural disaster	<input checked="" type="checkbox"/> <b>Conflict</b>	<input type="checkbox"/> Other ( <i>specify</i> )
<b>Type of Crisis</b>	<input type="checkbox"/> Sudden onset	<input type="checkbox"/> Slow onset	<input checked="" type="checkbox"/> <b>Protracted</b>
<b>Mandating Body/ Agency</b>	International Committee of the Red Cross (ICRC)		
<b>IMPACT Project Code</b>	TBC		
<b>Overall Research Timeframe</b> ( <i>from research design to final outputs / M&amp;E</i> )	01/03/2023 to 28/10/2023		
<b>Research Timeframe</b> <i>Add planned deadlines (for first cycle if more than 1)</i>	1. Pilot/ training: 21/05/2023		7. Outputs sent for validation: 20/08/2023
	2. Start collect data: 23/05/2023		8. Outputs published: 30/09/2023
	3. Data collected: 22/06/2023		9. Final presentation: When requested
	4. Data analysed: 06/07/2023		
	5. Data sent for validation: 13/07/2023		
<b>Number of assessments</b>	<input checked="" type="checkbox"/> <b>Single assessment (one cycle)</b>		
	<input type="checkbox"/> Multi assessment (more than one cycle) <i>[Describe here the frequency of the cycle]</i>		
<b>Humanitarian milestones</b> <i>Specify <b>what</b> will the assessment inform and <b>when</b> e.g. The shelter cluster</i>	<b>Milestone</b>		<b>Deadline</b>
	<input checked="" type="checkbox"/>	<b>Donor plan/strategy</b>	28/10/2023
	<input type="checkbox"/>	Inter-cluster plan/strategy	--/~/----
	<input type="checkbox"/>	Cluster plan/strategy	--/~/----
	<input type="checkbox"/>	NGO platform plan/strategy	--/~/----
	<input type="checkbox"/>	Other (Specify):	--/~/----

<p>will use this data to draft its Revised Flash Appeal;</p>			
<p><b>Audience Type &amp; Dissemination</b> Specify <b>who</b> will the assessment inform and <b>how</b> you will disseminate to inform the audience</p>	<p><b>Audience type</b></p> <p><input type="checkbox"/> Strategic</p> <p><input checked="" type="checkbox"/> Programmatic</p> <p><input checked="" type="checkbox"/> Operational</p> <p><input type="checkbox"/> [Other, Specify]</p>		<p><b>Dissemination</b></p> <p><input checked="" type="checkbox"/> General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors) (if publication authorisation from the relevant authorities is forthcoming)</p> <p><input type="checkbox"/> Cluster Mailing (Education, Shelter and WASH) and presentation of findings at next cluster meeting</p> <p><input checked="" type="checkbox"/> Presentation of findings (e.g. at HCT meeting; Cluster meeting)</p> <p><input checked="" type="checkbox"/> Website Dissemination (Relief Web &amp; REACH Resource Centre) (if publication authorisation from the relevant authorities is forthcoming)</p> <p><input type="checkbox"/> [Other, Specify]</p>
<p><b>Detailed dissemination plan required</b></p>	<p><input type="checkbox"/></p>	<p>Yes</p>	<p><input checked="" type="checkbox"/> No</p>
<p><b>General Objective</b></p>	<p>Understand Mosul’s citizens’ water sources and usage, connection to the municipal water network, access to water services according to their socio-economic background, and perspectives on water delivery, affordability and payment, in order to inform subsequent programming aimed at reorganising and strengthening municipal water service delivery in Mosul.</p>		
<p><b>Specific Objective(s)</b></p>	<p>a) Explore Mosul households’ water sources, usage, and expenditure</p> <ul style="list-style-type: none"> <li>○ Identify households’ main water sources, including their perceived quality and reliability</li> <li>○ Understand households’ usage of water sources, including the quantity of water used, the tools used for water collection, and the purposes for which each source is used</li> <li>○ Identify amount households spend on each water source, as a total and as a proportion of income and expenditure</li> <li>○ Understand households’ readiness to pay for the existing and an improved municipal water supply service</li> </ul> <p>b) Assess rates of connectivity to and perceptions of municipal water service</p> <ul style="list-style-type: none"> <li>○ Determine rates of connectivity to and payment for the municipal water network</li> <li>○ Understand perceptions of the municipal water service, including the standard and reliability of its water network and water distribution</li> </ul>		

	<ul style="list-style-type: none"> <li>○ Assess formal and informal complaint and redressal mechanisms</li> <li>○ Provide an understanding of households' perceptions of the water authority of Mosul</li> </ul> <p>c) Understand Mosul's socio-economic breakdown as it relates to water service delivery</p> <ul style="list-style-type: none"> <li>○ Identify household income and expenditure levels</li> <li>○ Assess water service delivery for Mosul residents based on socio-economic background</li> </ul>			
<b>Research Questions</b>	<ol style="list-style-type: none"> <li>1. What are Mosul households' water sources, usage patterns, and levels of expenditure on water?</li> <li>2. What are Mosul households' rates of connectivity to and perceptions of municipal water services?</li> <li>3. What is the socio-economic breakdown of Mosul households and how does this relate to their access to water services?</li> </ol>			
<b>Geographic Coverage</b>	Mosul city, Al-Mosul district, Ninewa governorate.			
<b>Secondary data sources</b>	<ul style="list-style-type: none"> <li>• Population data (e.g. IOM Displacement Tracking Matrix's <a href="#">Returnee and IDP Master Lists</a>, <a href="#">Integrated Location Assessment [ILA]</a>, <a href="#">Return Index</a>)</li> <li>• General background and context research on areas being targeted for assessment</li> <li>• Geo-spatial data (e.g. UNOSAT satellite imagery)</li> <li>• Relevant REACH Initiatives assessments (e.g. <a href="#">2019 Mosul al-Salam ABA</a>)</li> <li>• Iraq 2022 Multi-Cluster Needs Assessment (MCNA) <a href="#">dataset</a></li> <li>• UN Habitat outputs on Mosul (<a href="#">2016 City Profile</a> and <a href="#">The Initial Planning Framework for the Reconstruction of Mosul</a>)</li> <li>• <a href="#">A Comprehensive Assessment of Potable Water Supply Services in Mosul city</a>, Hydroconseil – Urbaconsulting – Ax'eau Consortium</li> </ul>			
<b>Population(s)</b> <i>Select all that apply</i>	<input type="checkbox"/>	IDPs in camp	<input type="checkbox"/>	IDPs in informal sites
	<input checked="" type="checkbox"/>	<b>IDPs in host communities</b>	<input type="checkbox"/>	IDPs [Other, Specify]
	<input type="checkbox"/>	Refugees in camp	<input type="checkbox"/>	Refugees in informal sites
	<input type="checkbox"/>	Refugees in host communities	<input type="checkbox"/>	Refugees [Other, Specify]
	<input checked="" type="checkbox"/>	<b>Host communities</b>	<input checked="" type="checkbox"/>	<b>Returnees</b>
<b>Stratification</b> <i>Select type(s) and enter number of strata</i>	<input checked="" type="checkbox"/>	<b>Geographical #: 8 municipalities</b> Population size per strata is known? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/>	Group #: ___ Population size per strata is known? <input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/>	[Other Specify] #: -- Population size per strata is known?

					<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Data collection tool(s)</b>	<input checked="" type="checkbox"/>	<b>Structured (Quantitative)</b>	<input checked="" type="checkbox"/>	<b>Semi-structured (Qualitative)</b>		
	<b>Sampling method</b>		<b>Data collection method</b>			
<b>Structured data collection tool # 1 (Household survey)</b> <i>Select sampling and data collection method and specify target # interviews</i>	<input type="checkbox"/> Purposive <input type="checkbox"/> Probability / Simple random <input checked="" type="checkbox"/> <b>Probability / Stratified simple random</b> <input type="checkbox"/> Probability / Cluster sampling <input type="checkbox"/> Probability / Stratified cluster sampling <input type="checkbox"/> [Other, Specify]		<input type="checkbox"/> Key informant interview (Target #):_ _ <input type="checkbox"/> Group discussion (Target #):_ _ _ _ _ <input checked="" type="checkbox"/> <b>Household interview (Target #): 918</b> <input type="checkbox"/> Individual interview (Target #):_ _ _ _ _ <input type="checkbox"/> Direct observations (Target #):_ _ _ _ _ <input type="checkbox"/> [Other, Specify] (Target #):_ _ _ _ _			
<b>Semi-structured data collection tool (s) # 1 (FGD tool)</b> <i>Select sampling and data collection method and specify target # interviews</i>	<input checked="" type="checkbox"/> <b>Purposive</b> <input type="checkbox"/> Snowballing <input type="checkbox"/> [Other, Specify]		<input type="checkbox"/> Key informant interview (Target #):_ _ <input type="checkbox"/> Individual interview (Target #):_ _ _ _ _ <input checked="" type="checkbox"/> <b>Focus group discussion (Target #): 16</b> <input type="checkbox"/> [Other, Specify] (Target #):_ _ _ _ _			
<b>Target level of precision if probability sampling</b>	95% level of confidence at city level  95% level of confidence at municipality level		3% +/- % margin of error at city level  10%+/- % margin of error at municipality level			
<b>Data management platform(s)</b>	<input checked="" type="checkbox"/>	IMPACT	<input type="checkbox"/>	UNHCR		
	<input type="checkbox"/>	[Other, Specify]				
<b>Expected output type(s)</b>	<input type="checkbox"/>	Situation overview #: _ _	<input checked="" type="checkbox"/>	<b>Infographic report #: 1</b>	<input type="checkbox"/>	Profile #: _ _
	<input type="checkbox"/>	Presentation (Preliminary findings) #: _ _	<input checked="" type="checkbox"/>	<b>Presentation (Final) #: 1 (more if requested)</b>	<input type="checkbox"/>	Factsheet #: _ _
	<input type="checkbox"/>	Interactive dashboard #: _	<input type="checkbox"/>	Webmap #: _ _	<input type="checkbox"/>	Map #: _ _
	<input checked="" type="checkbox"/>	<b>Clean dataset #: 1</b>				
<b>Access</b>	<input type="checkbox"/>	Public (available on REACH resource center and other humanitarian platforms)				

	<b>X</b>	<b>Restricted (bilateral dissemination only upon agreed dissemination list, no publication on REACH or other platforms)</b>
<b>Visibility</b> <i>Specify which logos should be on outputs</i>	<b>IMPACT</b>	
	<b>Donor:</b> ICRC	
	<b>Coordination Framework:</b> N/A	
	<b>Partners:</b> N/A	

## 2. Rationale

### 2.1 Background

Mosul is the second largest city in Iraq after Baghdad, with an estimated population of between 1.1 and 1.6 million.<sup>1</sup> It is also the capital city of Ninewa governorate and it is divided in two by the Tigris river in an East (left) and West (right) bank. Mosul fell under the control of the Islamic State group (ISg) on the 10<sup>th</sup> June 2014 and was not fully liberated until 11 July 2017 after several months of battle, of which four were spent liberating West Mosul.<sup>2</sup> As a consequence of this long battle, all Mosul but especially the West bank saw severe levels of shelter and infrastructure destruction, which has yet to be fully rehabilitated.<sup>3</sup> This destruction has also negatively affected access to basic services and livelihood opportunities.<sup>4 5</sup>

Among the municipal assets that were damaged or neglected during the ISg occupation and the 2017 military operations was the city's water infrastructure, especially water pumping stations and pipes.<sup>6</sup> A 2021 study by the ICRC found that fewer than 15 per cent of people on Mosul's left bank and 35 per cent on the right bank had enough water to meet their daily needs, partly because the war destroyed vital infrastructure such as water pumping stations.<sup>7</sup> A 2019 assessment concluded that system inefficiencies due to non-adapted infrastructure and the absence of an effective management system were prevalent in the Mosul water service, including water leakage and loss, inefficient pumping operations and energy loss.<sup>8</sup> The damage to the city's electrical infrastructure has also led to water shortages due to a lack of power to operate water pumps, and this has had a compounding effect with low rainfall and drought that Iraq and Ninewa Governorate have been experiencing in recent years.<sup>9</sup> REACH previously conducted area-based assessments (ABAs) in two municipalities of Mosul, al-Jadida (December 2017) and al-Salam (April 2019), and the findings

<sup>1</sup>[http://unhabitatiraq.net/mosulportal/wp-content/uploads/2017/05/170329\\_Population-Census-2009.pdf](http://unhabitatiraq.net/mosulportal/wp-content/uploads/2017/05/170329_Population-Census-2009.pdf); [https://population.un.org/wup/Download/Files/WUP2018-F12-Cities\\_Over\\_300K.xls](https://population.un.org/wup/Download/Files/WUP2018-F12-Cities_Over_300K.xls)

<sup>2</sup> Global Public Policy Institute (GPPI), Iraq after ISIL: Mosul, 21 August 2017. Available [here](#).

<sup>3</sup> Ibid.

<sup>4</sup> Norwegian Refugee Council (NRC), 5 years since Mosul retaking, young people face education, employment crisis, 6 July 2022. Available [here](#).

<sup>5</sup> ICRC, Iraq: Life in Mosul through a child's eyes, 13 December 2021. Available [here](#).

<sup>6</sup> AlJazeera, 'All the trees have died': Iraqis face intensifying water crisis', 5 November 2021. Available [here](#); ICRC, Iraq: Life in Mosul through a child's eyes, 13 December 2021. Available [here](#).

<sup>7</sup> ICRC, Iraq: Life in Mosul through a child's eyes, 13 December 2021. Available [here](#).

<sup>8</sup> Hydroconseil – Urbaconsulting – Ax'eau Consortium, A Comprehensive Assessment of Potable Water Supply Services in Mosul City, July 2021. Available [here](#).

<sup>9</sup> IFRC, Iraq: Droughts - DREF Operation n° MDRIQ013 - Operation update n° 1, 14 July 2022. Available [here](#); CARE, Restoring water supply system and improved sanitation and hygiene practices in West Mosul, Iraq - Phase III, June 2020. Available [here](#).

suggested different levels of recovery of water services in each municipality. Mosul al-Jadida seemed to struggle with sporadic water supply due to infrastructure damage,<sup>10</sup> whereas Mosul al-Salam seemed to have recovered its water services to pre-2014 levels, although poor water quality remains an issue.<sup>11</sup> Water supply reportedly also varies greatly between neighbourhoods as well.<sup>12</sup>

As water services are being rehabilitated and reorganised in Mosul by the municipal and governorate water authorities and by humanitarian and development actors, it has become important to better understand the inhabitants' precise connection status, service quality perception, level of trust in service providers, and perspectives on water delivery, affordability, and the value of water services.<sup>13</sup> This information is crucial as an input for a system diagnosis considering users' needs, and for an alternative solutions analysis considering traditional water management practices, households' economic capacity and the current social context. The analyses should contribute to the creation of a water service that is reactive to inhabitants' needs and used by them in a sustainable way. There is a lack of detailed information encompassing households' connection status, trust levels and perceptions of water services, which is needed by relevant aid actors and the water authorities at an engineering level. This assessment proposes to fill these information gaps, in order to inform programming aimed at reorganising and strengthening the municipal water service.

This assessment will be designed and carried out in collaboration with the International Committee of the Red Cross (ICRC). The ICRC Water and Habitat Department entered a multiyear partnership with the governorate water authority – the Ninawa directorate of water (DoW) – to help it develop a more reliable, sustainable and equitable service delivery.<sup>14</sup> In partnership with the DoW, the ICRC is arranging the rollout of a detailed diagnosis of existing water services in Mosul in 2023, and subsequent programming to improve access to safe water.

## 2.2 Intended impact

The proposed assessment will provide data and analysis that will feed into this diagnosis and inform the subsequent programming. The assessment's outputs are intended to primarily benefit the ICRC, the DoW, and humanitarian and development actors carrying out water-related diagnoses and programming in the city, supporting their efforts to strengthen Mosul's water services. With agreement from ICRC, some data and findings may be shared with other WASH actors to inform broader programming and services. By informing these actors' interventions, it is hoped that this assessment will contribute to improving sustainable and equitable access to safe water for Mosul's residents.

<sup>10</sup> REACH, Mosul al-Jadida Municipality Area Based Assessment (ABA), December 2017. Available [here](#).

<sup>11</sup> REACH, Mosul al-Salam Municipality Area Based Assessment (ABA), April 2019. Available [here](#).

<sup>12</sup> CARE, Restoring water supply system and improved sanitation and hygiene practices in West Mosul, Iraq - Phase III, June 2020. Available [here](#).

<sup>13</sup> ICRC, Technical assistance to Directorate of water, Ninawa towards achieving equitable and sustainable water services in Mosul and Tal Afar –Iraq, April 2022. Available [here](#).

<sup>14</sup> ICRC, Technical assistance to Directorate of water, Ninawa towards achieving equitable and sustainable water services in Mosul and Tal Afar –Iraq, April 2022. Available [here](#).

This research will provide the ICRC and accordingly the Ninewa DoW with data to help better understanding the current water provision conditions, people's perceptions regarding the water service generally, and their ability and affordability to pay for water service specifically. This study is part of a broader vulnerability and risks analysis on the continuity and sustainability of the water service and will inform future programming toward more sustainable and equitable water services. The study is expected to directly inform upcoming ICRC projects and the municipal authorities' service delivery. It will be based on specific indicators that are established in coordination with the ICRC and consulted upon with the DoW.

## 3. Methodology

### 3.1 Methodology overview

The assessment will employ a primarily quantitative approach consisting of primary data collection in the form of structured household interviews. It will also include focus group discussions to review the findings from the household survey with gender disaggregated household members in each municipality.

The household survey will consist of 918 (including a 15% buffer) face-to-face interviews with randomly selected households in Mosul city should the security situation permit. The inhabitants of the city will be geographically stratified by municipalities. A representative sample will be obtained for each of the eight municipalities. The structured interviews will be comprised of close-ended questions to identify the household's demographic and livelihoods profile, main water sources, water usage trends, connection status, perceptions of the water services, formal and informal complaint and redressal mechanisms, and level of trust in service providers.

The city of Mosul has been selected by ICRC for the assessment in order to obtain data for a diagnosis and subsequent programming to improve access to safe water in the city. Household-level interviews were chosen because they are the most effective way of obtaining information on people's perspectives and experiences regarding the local water supply. The interviews will be carried out face-to-face, should the security situation permit. Should the situation change between drafting and the time of data collection, the feasibility of in-person data collection and potential shifts in methodology will be explored in close consultation with ICRC.

### 3.2 Population of interest

The assessment will cover the general population residing in Mosul city. This may include but is not limited to: remainees / host communities, returnees, and/or IDPs (out-of-camp).<sup>15</sup> The household data collection will not specifically target female-headed households, but the assessment aims to

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<sup>15</sup> These population groups are categorised using an adapted version of the [International Organisation of Migration's Displacement Tracking Matrix \(IOM DTM\) definitions](#): IDPs are all Iraqis who were forced to flee their subdistrict of origin from 1 January 2014 onwards and are still displaced within national borders at the moment of the assessment; returnees are those who were displaced from their subdistrict of origin since January 2014 but have returned to it, irrespective of whether they have returned to their former residence or to another shelter type; non-displaced are those who were not displaced from their subdistrict of origin since January 2014.



examine their particular perspectives – by disaggregating the results by head of household gender – if enough are interviewed. Additionally, the FGDs will be divided by gender with one all-male and one all-female FGD per municipality, allowed a gendered perspective on issues related to water needs and services.

Regarding the geographical coverage of the assessment, the household survey will target respondents residing in each of the municipalities of Mosul city. The main unit of measurement that will be used for the quantitative component of the assessment will be households.

### 3.3 Secondary data review

A limited secondary data review (SDR) will be conducted by IMPACT prior to starting data collection in order to obtain reliable population data at the municipality level, identify information gaps and thus inform the research design, develop a contextual understanding of water provision and needs in Mosul city and triangulate it with the findings.

The following sources are examples of those that will be included in the SDR:

- Population data (e.g. IOM Displacement Tracking Matrix's [Returnee and IDP Master Lists](#), [Integrated Location Assessment \(ILA\)](#), [Return Index](#))
- General background and context research on areas being targeted for assessment
- Geo-spatial data (e.g. UNOSAT satellite imagery)
- Relevant REACH Initiatives assessments (e.g. [2019 Mosul al-Salam ABA](#))

### 3.4 Primary Data Collection

#### 3.4.1 Household Survey

The household interviews will be carried out by 16 male IMPACT enumerators and 5 drivers. The data collection period will begin in May 2023 and is expected to last 30 days. In the case of access or movement restrictions, IMPACT will attempt to carry out the household interviews by telephone using contact details provided by Mosul community leaders as well as snowballing and, if not successful, will stand by to carry them out when the access is secured. IMPACT has the advantage of having already recruited a team of qualified enumerators able to rapidly deploy in Mosul in order to carry out this assessment in person, as well as teams in Baghdad and Erbil call-centres skilled in remote data collection, including rapidly building trust and eliciting full responses over the phone. Enumerators will receive a day of training (in person at IMPACTS's Erbil office or remotely via Skype depending on convenience and availability) on the indicators, questionnaire, and ways of conducting the interviews before going into the field. The tool will be tested before and on the first day of data collection in order to receive feedback on any problems that may arise. The same team used in the Tal Afar city water services assessment will perform the data collection in Mosul, which will ensure consistency and familiarity with the overall assessment objectives.

### Sampling



The assessment will employ a stratified simple random sampling strategy that will provide statistically representative data with a confidence level of 95% and a +/-5% margin of error at the city level. There will be one geographical strata: municipality. Findings at the municipality level will be generalisable with a confidence level of 95% and a +/-10% margin of error.

For the municipality-level sampling, IMPACT utilised official municipality boundaries and population [figures obtained from UN Habitat](#).

**Table 1. Population and number of interviews by municipality.**

<b>Municipality</b>	<b>Estimated number of households</b>	<b>Estimated sample size (with 15% buffer)</b>
Mosul al-Ghizlani	5,853	109
Mosul al-Hadbaa	19,242	110
Mosul al-Jadeda	23,855	110
Mosul al-Jazaer	17,525	110
Mosul al-Rabee	35,623	110
Mosul al-Salam	20,929	110
Mosul al-Zuhur	50,461	110
Mosul old city	11,589	109
<b>Total</b>	<b>185,078</b>	<b>878</b>

Target households will be identified using randomised spatial sampling which randomly distributes GPS points weighted by household density data from UN Habitat. Enumerator teams will then navigate using the sample map and the Maps.me application to each point and select the nearest household for assessment. Where this household is empty, unresponsive, or refuses to participate in the survey, the enumerator will move to the next nearest household. Attempted interviews with such households will not go towards meeting the interview quotas.

For the household interviews, the head of household will be interviewed wherever possible. However, if the household head is not available, household individuals over the age of 18 will be asked to participate in the survey. In this situation, household members will be asked to decide among themselves who could best provide household information for the assessment.

## **Tools**

A list of indicators has been finalised for the assessment in collaboration with the ICRC and WASH specialists based at IMPACT's HQ in Geneva. The indicators have been developed to answer the research questions of the assessment and to correspond to the data analysis plan. The data analysis plan, including all indicators and questions being used for the assessment, can be consulted in the annexes of this document. Based on the indicator list, a data collection tool (household survey) will be developed. The tool will be translated to Arabic by the IMPACT operations team, and national field staff will be consulted to ensure all questions are fully understandable to respondents and enumerators and are appropriate for the local context.

All respondents will be asked to provide specific household biodata including the number of household members, their ages, gender, and vulnerabilities.

The first day of data collection will be used as a pilot period to test the tool in the field and receive feedback on any issues encountered. IMPACT will request detailed feedback from field teams regarding any problems they have faced with the tool and any ideas they have had on ways to improve it. If changes to the Kobo form are found to be necessary, the Assessment Officer (AO) will work with the relevant focal points to rapidly revise the form for official data collection.

### **3.4.2 Focus Group Discussions**

In addition, Focus Group Discussions (FGD) will be conducted to provide context and additional in-depth information to explain the household survey results. A bank of questions will be designed based on the lessons learnt from the Tel Afar assessment, and modified accordingly afterwards once the preliminary analysis of the household survey is ready. In total, IMPACT will conduct 16 FGDs, two in each municipality and disaggregated by gender (one FGD with women and one FGD with men). The FGDs will be conducted 2-3 weeks after the first draft of the preliminary analysis to provide enough time to prepare the questionnaire and adapt it to the findings. Participants will be purposively selected from the list of respondents of the household survey, which will be used to randomly select between 6-8 participants for each FGD. FGDs will be conducted in secure spaces, respecting social distancing protocols in line with [IMPACT Data Collection during COVID-19 Guidelines](#), and facilitated by two staff/enumerators that are of the same sex of participants (e.g., female staff will facilitate FGDs with female participants), one acting as facilitator and one acting as note-taker. FGDs will be recorded for transcription and analysis purposes, and IMPACT will ask participants' consent to record the discussion. Should a minimum of one participant not give consent to be recorded, IMPACT staff will proceed with facilitating the FGD without recording it and taking detailed notes of the discussion. Lastly, for each FGD conducted, IMPACT staff will fill out a debrief form that aims at capturing non-verbal information as well as potential challenges with the questions asked (e.g., questions that are perceived as sensitive). Such debrief forms, alongside any operational challenges, will be the focus of daily debrief sessions that the IMPACT field and assessment team will hold to ensure that proper action is taken in case problems are identified. Findings from the FGDs will be indicative only.

## **3.5 Data Processing & Analysis**

The collected data will be uploaded via Kobo collect to a website accessible to the assessment staff, who, together with the database officer, will carry out data cleaning. As established in IMPACT's Data Cleaning Minimum Standards Checklist, the data cleaning will involve searching for the following issues and errors and taking the required action:

- Inexplicable or impossible outlying figures
- Logical errors/inconsistencies
- Duplicated records
- Information that can be used to identify individuals or households
- Interviews in unintended sampling locations/points
- Unreasonably quick interviews
- Enumerators consistently follow the shortest questionnaire path or the exact same path

IMPACT will extract the phone numbers for those households that were willing to be contacted by ICRC for a follow up on the environmental and social impacts due to improvements in water services. These phone numbers will be disassociated from the original dataset and will be turned into a separate list in order to avoid any possibilities of linking data to individuals. Specific consent will be sought from households for this purpose, including ensuring they are aware of with whom this information will be shared and for what purpose. This information will be shared *only* with ICRC, who will not share further. This will be formalised through formal data sharing protections agreed between IMPACT and ICRC, which will be done through either (i) a data sharing agreement will be created between IMPACT and ICRC upon signature of the wider contract or (ii) specific data sharing and protection provisions incorporated into the consulting contract.

For all issues and errors in the data that are the result of enumerators' choices and are not clearly explicable to the data cleaning staff, a follow-up will be carried out with the relevant enumerator to clarify and aid data correction. At the end of the process, the cleaned data will need to be checked and validated by IMPACT Initiatives HQ.

When data collection and cleaning is complete, analysis based on the research questions and data analysis plan will be carried out by the assessment staff and database officer. Indicators will be disaggregated geographically at the municipality level, and also by head of household gender and socio-economic status if the sample size allows. R and Excel will be used for the data analysis. Based on the results of the analysis, a presentation of the key findings as well as thematic and/or demographic maps will be produced. The clean dataset will be shared with ICRC and the key findings will be presented to ICRC and other relevant or interested actors. An edited version of the clean dataset with all personally identifiable information removed may be made publicly available on the REACH resource centre if deemed appropriate by both ICRC and IMPACT. This possibility will be covered in the data sharing agreement between IMPACT and ICRC.

Regarding the FGDs, once they have been transcribed, in line with the IMPACT Qualitative Analysis Minimum Standards Checklist, transcripts will be used as a basis for filling out a Data Saturation and Analysis Grid (DSAG) in Excel throughout data collection. An IMPACT Assessment Officer will analyse

the transcripts by looking at the most commonly reported answers, potential disagreements across geographies, groups and/or individuals, as well as cross-cutting themes. The DSAG will also include a “Method Report” and “Key Findings” summaries which will also present any relevant findings from the debrief forms. Findings from the analysis will be indicative only.

### 3. Roles and responsibilities

**Table 2: Description of roles and responsibilities**

<b>Task Description</b>	<b>Responsible</b>	<b>Accountable</b>	<b>Consulted</b>	<b>Informed</b>
Research design	Assessment Officer (AO)	Research Manager (RM)	Research Design and Data Unit; GIS Officer (GISO)	Donor: ICRC
Supervising data collection	Senior Field Officer; Operations Coordinator; AO; GISO	AO	RM	IMPACT Country coordinator (CC); Donor (ICRC)
Data processing (checking, cleaning)	Database Officer; AO	AO	IMPACT Research Design and Data Unit	CC; RM
Data analysis	Database Officer; AO	AO	RM; IMPACT Research Design and Data Unit; Donor (ICRC)	CC
Output production	AO; GISO	AO; RM	CC; IMPACT Reporting Unit; IMPACT Research Design and Data Unit; Donor (ICRC)	CC; ICRC
Dissemination	AO; GISO	AO; RM	CC; IMPACT Reporting Unit	CC; ICRC
Monitoring & Evaluation	AO; GISO	AO; RM	Donor (ICRC); Operations Coordinator;	CC

Lessons learned	AO; GISO	AO	RM; IMPACT Research Design and Data Unit	CC
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**Responsible:** the person(s) who executes the task

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

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

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

### 4. Key ethical considerations and related risks

*\*\*For detailed guidance on how to complete this section, see also Step 5 of the IMPACT Research Design Guidelines\*\**

The proposed research design meets / does not meet the following criteria:

<b>The proposed research design...</b>	<b>Yes/ No</b>	<b>Details if no (including mitigation)</b>
... Has been coordinated with relevant stakeholders to <b>avoid unnecessary duplication</b> of data collection efforts?	Yes	
... <b>Respects respondents, their rights and dignity</b> (specifically by: seeking informed consent, designing length of survey/ discussion while being considerate of participants' time, ensuring accurate reporting of information provided)?	Yes	
... Does not <b>expose data collectors to any risks as a direct result</b> of participation in data collection?	Yes	
... Does not <b>expose respondents / their communities to any risks as a direct result</b> of participation in data collection?	No	The memorandum of understanding between IMPACT and ICRC will include provisions outlining the protocols for sharing of sensitive and personally identifiable information beyond these two organisations will be written and

		signed. Explicit consent will be gathered from respondents to collect this information and share it with ICRC.
... Does not involve <b>collecting information on specific topics which may be stressful and/ or re-traumatising</b> for research participants (both respondents and data collectors)?	Yes	
... Does not involve <b>data collection with minors</b> i.e. anyone less than 18 years old?	Yes	
... Does not involve <b>data collection with other vulnerable groups</b> e.g. persons with disabilities, victims/ survivors of protection incidents, etc.?	Yes	
... Follows IMPACT SOPs for management of <b>personally identifiable information</b> ?	Yes	

## 5. Data Analysis Plan

Indicator group / sector	Indicator / Variable	Questionnaire Question	Questionnaire Responses
Key characteristics	Enumerator ID	Enumerator ID	
Key characteristics	Neighbourhood	In which neighbourhood is the household?	
Key characteristics	Consent	Hello, my name is __ and I work for IMPACT Initiatives, a Swiss non-governmental organisation. We are conducting a survey in collaboration with the International Committee of the Red Cross in order to inform the strengthening of water services in Mosul city. This interview takes approximately 40 minutes. Your answers will remain anonymous and no personally identifiable information about you will be shared. Your participation is voluntary and you are free to withdraw at any moment during the survey. Are you willing to participate?	Yes No

Key characteristics	Respondent's status in household	Are you the head of household?	Yes No
Key characteristics	Consent to respond on behalf of head of household	[If no] Are you willing and able to respond to the questions on behalf of the household?	Yes No
Key characteristics	Respondent's age	What is your age?	integer
Key characteristics	Head of household's age	[If respondent is not the head of household] What is the age of the head of household?	integer
Key characteristics	% of households with a female HoH	What is the gender of the head of household?	Male Female
Key characteristics	Displacement status	Was your household living in Mosul city prior to June 2014?	Yes No
Key characteristics	Displacement status	Has your household been displaced from Mosul city since June 2014?	Yes No
Key characteristics	Displacement status	What date did your household return to this location?	Integer
Key characteristics	Displacement status	[If 'No' to 'Was your household living in Mosul city prior to June 2014?'] Did you move to this location because of armed conflict, violence, violations of human rights, or natural disasters since 2014?	Yes No



Key characteristics	Average family size	How many members are there in your household?	integer
Key characteristics	% of households hosting others	Is your household hosting others in this house?	Yes No
Key characteristics	# of individuals hosted in household	[If 'Yes'] How many people are being hosted?	integer
Key characteristics	% of households being hosted	[If 'No'] Is your household being hosted in this dwelling?	Yes No
Key characteristics	% of households by occupancy status	[If 'No'] What is the status of your household's occupancy of this dwelling?	Owned/purchased Rented Granted by organisations/authorities with permission Granted by relatives/family with permission Granted by others with permission Squatted without permission Other (specify)
Key characteristics	% of households with a written property title	[If 'Owned/purchased'] Does your household have a written property title for the house?	Yes No Don't know Prefer not to answer
Key characteristics	% of households with a written rental contract	[If 'Rented'] Does your household have a written rental contract for the house?	Yes No Don't know Prefer not to answer
Key characteristics	% of households with at least one adult working	How many adults (aged 18 and over) in your household have worked in the following types of jobs in the past 30 days?	

Key characteristics	% of households with at least one adult working	1. Permanent job with annual/monthly/weekly wage (go to work regularly with predictable monthly salary, work has a tenure of more than one year or is of indefinite/unlimited duration)	integer
Key characteristics	% of households with at least one adult working	2. Temporary job with weekly/daily/monthly wage (short-term employment of maximum 12 months, less predictable source of income)	integer
Key characteristics	% of households with at least one adult working	3. Daily labour (hired on an as-needed basis to work for the day and paid one day at a time)	integer
Key characteristics	% of households with at least one adult working	4. Other	integer
Key characteristics	% of households with children working	How many children (aged 17 and under) in your household have worked in the following types of jobs in the past 30 days?	
Key characteristics	% of households with children working	1. Permanent job with annual/monthly/weekly wage (go to work regularly with predictable monthly salary, work has a tenure of more than one year or is of indefinite/unlimited duration)	integer
Key characteristics	% of households with children working	2. Temporary job with weekly/daily/monthly wage (short-term employment of maximum 12 months, less predictable source of income)	integer
Key characteristics	% of households with children working	3. Daily labour (hired on an as-needed basis to work for the day and paid one day at a time)	integer
Key characteristics	% of households with children working	4. Other	integer

Key characteristics	% of households relying on unstable sources of income to meet basic needs	What were your household's primary income sources over the last 30 days?	Savings Employment Remittances Retirement fund or pension Income from renting out house, land or property Selling household assets Selling assistance received Loans, debts MODM (Ministry of Displacement and Migration) cash assistance Support from community, friends, family NGO or charity assistance Social service (disability allowance) Illegal or socially degrading activities Zakat Other Don't know Prefer not to answer
Key characteristics	Household's total income in the past 30 days	Could you estimate your household's total income (in IQD) from employment and pension over the last 30 days?	integer
Key characteristics	Household's total expenditure in the past 30 days	Could you estimate your household's total expenditure (in IQD) over the last 30 days?	integer
Key characteristics	Household's current debt	If any, what is your household's total amount of debt, in IQD?	integer
Key characteristics	% households taking on debt to cover healthcare, food, education, or basic household expenditures	What was the primary reason behind taking on debt?	Basic household expenditures (rent, utilities) House repair/reconstruction Healthcare Food Education Clothing or NFIs Purchasing productive assets for small business or income-generating activities Other [explain]

Key characteristics	% of HHs using crisis or emergency coping strategies	During the past 30 days, did anyone in your household have to do one of the following things because there was not enough food or money to buy it?	begin_group
Key characteristics	% of HHs using crisis or emergency coping strategies	Selling household properties (refrigerator, television, jewelry...)	Yes No, no need to use this coping strategy No, already exhausted this coping strategy Not applicable/strategy is not available to me
Key characteristics	% of HHs using crisis or emergency coping strategies	Buying food on credit or through borrowed money from relatives and friends	Yes No, no need to use this coping strategy No, already exhausted this coping strategy Not applicable/strategy is not available to me
Key characteristics	% of HHs using crisis or emergency coping strategies	Selling means of transport (car, motorbike)	Yes No, no need to use this coping strategy No, already exhausted this coping strategy Not applicable/strategy is not available to me
Key characteristics	% of HHs using crisis or emergency coping strategies	Children dropout from school	Yes No, no need to use this coping strategy No, already exhausted this coping strategy Not applicable/strategy is not available to me
Key characteristics	% of HHs using crisis or emergency coping strategies	Reducing expenditure on non-food items (health, education)	Yes No, no need to use this coping strategy No, already exhausted this coping strategy Not applicable/strategy is not available to me
Key characteristics	% of HHs using crisis or emergency coping strategies	Changing place of residence and accommodation to reduce expenses	Yes No, no need to use this coping strategy No, already exhausted this coping strategy Not applicable/strategy is not available to me
Key characteristics	% of HHs using crisis or emergency coping strategies	Engaging in high risk behaviour/activities	Yes No, no need to use this coping strategy No, already exhausted this

			<p>coping strategy</p> <p>Not applicable/strategy is not available to me</p>
Key characteristics	% of HHs using crisis or emergency coping strategies	Whole family are migrating	<p>Yes</p> <p>No, no need to use this coping strategy</p> <p>No, already exhausted this coping strategy</p> <p>Not applicable/strategy is not available to me</p>
Key characteristics	% of HHs using crisis or emergency coping strategies	Children or adult forcefully married	<p>Yes</p> <p>No, no need to use this coping strategy</p> <p>No, already exhausted this coping strategy</p> <p>Not applicable/strategy is not available to me</p>
Key characteristics	% of households lacking civil documentation	How many persons in your household do not have valid civil documentation (ID card or unified card).	Integer
Household water supply	% of households with access to an improved water source % of households by type of primary source of drinking water	What is the main source of water used by your household for drinking?	<p>Piped connection into house or yard</p> <p>Public tap/standpipe</p> <p>Borehole</p> <p>Dug well</p> <p>Bottled or sachet water</p> <p>Water trucking</p> <p>Spring</p> <p>Rainwater tank</p> <p>Surface water (river, stream, dam, lake, pond, canal, irrigation channel)</p> <p>Other (specify)</p> <p>Don't know</p>
Household water supply	Percentage of households treating their drinking water, by type of treatment	Does your household treat this water in any way to make it safer to drink?	<p>Yes, always treat it before drinking</p> <p>Yes, sometimes treat it before drinking</p> <p>No, never treat it before drinking</p> <p>Don't know</p>

Household water supply	Percentage of households treating their drinking water, by type of treatment	[If yes] What does your household usually do to the water to make it safer to drink?	Boil it Let it stand and settle Expose it to sunlight Use chlorine or other disinfection products (aquatabs/water purification tablets, PuR or watermaker sachets) Filter it Other (specify) Don't know
Household water supply	% of households by type of primary source of water for cooking/preparing food	What is the main source of water used by your household for cooking and preparing food?	Piped connection into house or yard Public tap/standpipe Borehole Dug well Bottled or sachet water Water trucking Spring Rainwater tank Surface water (river, stream, dam, lake, pond, canal, irrigation channel) Other (specify) Don't know
Household water supply	Percentage of households treating their water for cooking/preparing food, by type of treatment	Does your household treat this water in any way to make it safer to cook and prepare food with?	Yes, always treat it Yes, sometimes treat it No, never treat it Don't know
Household water supply	Percentage of households treating their water for cooking/preparing food, by type of treatment	[If yes] What does your household usually do to the water to make it safer to cook and prepare food with?	Boil it Let it stand and settle Expose it to sunlight Use chlorine or other disinfection products (aquatabs/water purification tablets, PuR or watermaker sachets) Filter it Other (specify) Don't know
Household water supply	% of households with access to acceptable quality water	[For each source selected for drinking and/or for cooking and preparing food, except 'Bottled or sachet water':] Is the quality of the water supplied from this source usually acceptable?	Yes, acceptable No, unacceptable taste No, unacceptable colour No, unacceptable smell No, contains materials No, other (specify) Don't know

Household water supply	% of households by type of primary source of water for for personal hygiene and bathing	What is the main source of water used by your household for personal hygiene and bathing?	<p>Piped connection into house or yard</p> <p>Public tap/standpipe</p> <p>Borehole</p> <p>Dug well</p> <p>Bottled or sachet water</p> <p>Water trucking</p> <p>Spring</p> <p>Rainwater tank</p> <p>Surface water (river, stream, dam, lake, pond, canal, irrigation channel)</p> <p>Other (specify)</p> <p>Don't know</p>
Household water supply	% of households by type of primary source of water for washing clothes	What is the main source of water used by your household for washing clothes?	<p>Piped connection into house or yard</p> <p>Public tap/standpipe</p> <p>Borehole</p> <p>Dug well</p> <p>Bottled or sachet water</p> <p>Water trucking</p> <p>Spring</p> <p>Rainwater tank</p> <p>Surface water (river, stream, dam, lake, pond, canal, irrigation channel)</p> <p>Other (specify)</p> <p>Don't know</p>
Household water supply	% of households by type of primary source of water for cleaning the house	What is the main source of water used by your household for cleaning the house?	<p>Piped connection into house or yard</p> <p>Public tap/standpipe</p> <p>Borehole</p> <p>Dug well</p> <p>Bottled or sachet water</p> <p>Water trucking</p> <p>Spring</p> <p>Rainwater tank</p> <p>Surface water (river, stream, dam, lake, pond, canal, irrigation channel)</p> <p>Other (specify)</p> <p>Don't know</p>



Household water supply	"% of households having had access to a sufficient quantity of drinking water  % of households reporting having had sufficient water for drinking (W3)"	In the last 4 weeks, how frequently has there not been as much water to drink as you would like for you or anyone in your household?	Never (0 times) Rarely (1–2 times) Sometimes (3–10 times) Often (11–20 times) Always (more than 20 times) Don't know
Household water supply	% of households by type of primary source of water for watering livestock	Does your household have any livestock?	Yes No Don't know Prefer not to answer
Household water supply	% of households by type of primary source of water for watering animals	[If yes] What is the main source of water used by your household for watering the animals?	Piped connection into house or yard Public tap/standpipe Borehole Dug well Bottled or sachet water Water trucking Spring Rainwater tank Surface water (river, stream, dam, lake, pond, canal, irrigation channel) Other (specify) Don't know
Household water supply	% of households by type of primary source of water for gardening and/or growing crops	Does your household engage in any gardening or crop cultivation?	Yes No Don't know Prefer not to answer
Household water supply	% of households by type of primary source of water for gardening and/or growing crops	[If yes] What is the main source of water used by your household for gardening and/or growing crops?	Piped connection into house or yard Public tap/standpipe Borehole Dug well Bottled or sachet water Water trucking Spring Rainwater tank Surface water (river, stream, dam, lake, pond, canal, irrigation channel) Other (specify) Don't know

Household water supply	Average number of days with water availability per week, by source	[For each source selected in the preceding questions, except 'Bottled or sachet water':] For how many days per week is water from this source generally available?	integer
Household water supply	Average number of hours with water availability per day, by source	[For each source selected in the preceding questions, except 'Bottled or sachet water':] On the days that water from this source is available, for how many hours per day is it generally available?	integer
Household water supply	% of households that are satisfied with water source, by source	[For each selected source:] Overall, how satisfied is your household with this water source?	Very satisfied Somewhat satisfied Neither satisfied nor dissatisfied Somewhat dissatisfied Very dissatisfied
Household water supply	Median expenditure on water, by source	[For each selected source:] Over the past 30 days, how much did your household spend on water from this source (if anything)?	integer
Household water supply	% of households by litres/person/day, by source	Does your household have (a) water tank(s) (either private or shared)?	Yes No Don't know
Household water supply	% of households by litres/person/day, by source	In total, how many people share the water tank(s) (including you, the members of your household, and the members of other households that use it)?	integer
Household water supply	% of households by litres/person/day, by source	[If yes] Do you know how many litres the water tank(s) hold(s) in total?	Yes No
Household water supply	% of households by litres/person/day, by source	[If yes] Number of litres:	integer
Household water supply	% of households by litres/person/day, by source	[If no] Can you please show me your water tank(s)?	Yes No

Household water supply	% of households by litres/person/day, by source	[If yes] (Observation): estimate the total volume of the water tank(s) in cubic meters.	integer
Household water supply	% of households by litres/person/day, by source	[For each selected source, except 'Bottled or sachet water':] Does your household store water from this source in your water tank(s)?	Yes No Don't know
Household water supply	% of households by litres/person/day, by source	[For each selected source, except 'Bottled or sachet water':] [If yes] How many times per month is the water tank(s) filled with water from this source?	integer
Household water supply	% of households by litres/person/day, by source	[For each selected source, except 'Bottled or sachet water':] [If yes] To what extent is the tank usually emptied before it is refilled?	Fully emptied Mostly emptied About half emptied Only a little emptied Don't know
Household water supply	% of households by litres/person/day, by source	[If 'Bottled or sachet water' is selected:] What is the volume (in litres) of the water bottles or sachets your household usually buys?	decimal
Household water supply	% of households by litres/person/day, by source	[If 'Bottled or sachet water' is selected:] How many bottles or sachets per week does your household usually buy?	integer
Household water supply	% of households by litres/person/day, by source	[If 'Borehole' is selected:] How many water pumps does your household use to extract water from the borehole?	integer
Household water supply	% of households by litres/person/day, by source	[If 'Borehole' is selected:] What horsepower does your household's water pump have?	It is a hand pump 7.5 10 15 20 25 30 40 50 60 Don't know Other (specify)

Household water supply	% of households by litres/person/day, by source	[If 'Borehole' is selected:] How many days per week does your household use its pump(s) to extract water from the borehole?	integer
Household water supply	% of households by litres/person/day, by source	[If 'Borehole' is selected:] On the days that your household uses its pump(s) to extract water from the borehole, for how many hours per day does your household use them?	integer
Household water supply	% of households with a direct pump connection to the municipal water supply system	[If 'Piped connection into house or yard' is selected:] Does your household have a direct pump connection to the municipal water supply system?	Yes No Don't know
Household water supply	Household member responsible for collecting and/or storing water	Who is generally responsible for collecting and/or storing water in your household?	No specific person Elderly woman (>59 years) Elderly man (>59 years) Adult woman (18-59 years) Adult man (18-59 years) Girl (<18 years) Boy (<18 years) Don't know Prefer not to answer
Household water supply	Seasonal variation in water needs	Does the quantity of water your household needs vary between summer (May-October) and winter (November-April)?	No Yes, we need more water in summer Yes, we need more water in winter Don't know
Household water supply	% of household using water-consuming air coolers	Does your household use water-consuming air coolers in summer?	Yes No Don't know
Household water supply	% of household using water-consuming air coolers	[If yes] How many coolers?	integer
Household water supply	% of household using water-consuming air coolers	[If yes] How many hours per day does your household use the water-consuming air coolers in the peak of summer?	integer

Household water supply	% of households having problems related to access to water, by type of problems	During the past 30 days, has your access to water been enough to satisfy the basic needs of your household (drinking, cooking, bathing and washing)?	More than sufficient Sufficient Just enough Insufficient Totally insufficient
Household water supply	% of households having problems related to access to water, by type of problems	[If the respondent answered "just enough", "insufficient" or "totally insufficient" to the previous question] Did your household have insufficient water to meet any of the following needs?	Drinking Cooking Personal hygiene (washing or bathing) Other domestic purposes (cleaning house, floor, etc.) Had enough water to meet all of the above needs Don't know
Household water supply	% of households having problems related to access to water, by type of problems	[If the respondent answered "just enough", "insufficient" or "totally insufficient" to the previous question] What are the main reasons your household is not able to meet its water needs? (Rank 1st reason, 2nd reason, 3rd reason)	Water does not come enough hours of the day Amount of water is not enough for household needs The hours water does come are inconvenient (e.g. middle of the night) Water supply is inconsistent Water is too expensive Water quality is poor Water pressure is not high enough/pumps required Water sources are not functioning or closed Water is not available in the shops Not enough tank capacity to store water Waterpoints are difficult to reach (especially for people with disabilities) Some groups (children, women, elderly, ethnic minorities, etc.) do not have access to the water sources Other (please list) Don't know Prefer not to answer
Household water supply	% of households resorting to a money-based coping mechanism for water insufficiency	In the past 30 days, has your household had to spend money (or credit) on water that should have been used for other basic needs?	Yes No Don't know Prefer not to answer

Connection to the municipal water supply system	% of households with a subscription to the municipal water supply system	What is the status of your household's connection to the municipal water supply system?	Have a permanent subscription Have a temporary or informal subscription Connected but do not have a subscription Share subscription/connection with neighbours Not connected to the municipal water supply Don't know Prefer not to answer
Connection to the municipal water supply system	Median household expenditure on water supply system connection fees during preceding five years	[If 'Have a permanent subscription', 'Have a temporary or informal subscription' or 'Share subscription/connection with neighbours'] Has your household paid a one-time fee to connect to the water supply system in the past five years?	Yes No Don't know Prefer not to answer
Connection to the municipal water supply system	Median household expenditure on water supply system connection fees during preceding five years	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] [If 'Yes' to previous question] How much did your household spend on the one-time fee?	integer
Connection to the municipal water supply system	% of households that report usually or always paying the municipal water charges	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] How regularly does your household pay municipal water charges?	Every time they are due Most of the time About half the time Rarely Never Don't know Prefer not to answer
Connection to the municipal water supply system	% of households that paid the municipal water charges with the preceding two months	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] [If not 'Never'] When did your household last pay the municipal water charges?	In the past 2 months Between 2 to 4 months ago Between 4 to 6 months ago Between 6 months and 1 year ago Longer than 1 year ago Don't know Prefer not to answer

Connection to the municipal water supply system	Median household expenditure on the last municipal water charges	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] [If not 'Never'] How much did your household spend on the last municipal water charges?	integer
Connection to the municipal water supply system	% of households by payment method for last municipal water charges	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] [If not 'Never'] What method did your household use to pay the last municipal water charges?	Cash Cheque Bank transfer Credit/debit card Direct debit Online/telephone payment app Other (specify) Don't know Prefer not to answer
Connection to the municipal water supply system	% of households by preferred payment method for municipal water charges	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] [If not 'Never'] How does your household prefer to pay the municipal water charges?	Paying at the water authority's office Paying a water authority representative that visits your home By bank transfer/direct debit Online or with a telephone payment app Other (specify) Don't know
Connection to the municipal water supply system	% of households by reason for non-payment of municipal water charges	[If 'Have a permanent subscription' or 'Have a temporary or informal subscription'] [If 'Rarely' or 'Never'] What is the reason your household rarely or never pays the municipal water charges?	Cannot afford them The water service is poor The government has a responsibility to provide free water Payment is difficult due to the required payment method, the paperwork or the staff The water office opening hours and/or staff visiting times are inconvenient There are no consequences for not paying Other (specify) Don't know Prefer not to answer



Connection to the municipal water supply system	% of households that think the price is lower than the value of the municipal water service	[If 'Have a permanent subscription', 'Have a temporary or informal subscription' or 'Share subscription/connection with neighbours'] In your household's opinion, what is the relationship between the value of the municipal water service and its price?	The price is lower than the value of the service The price is about equal to the value of the service The price is higher than the value of the service Don't know Prefer not to answer
Connection to the municipal water supply system	% of households that would be willing to pay more if the the municipal water service was improved	[If 'Have a permanent subscription', 'Have a temporary or informal subscription' or 'Share subscription/connection with neighbours'] If the municipal water service was improved, would your household be willing to pay more for the subscription?	Yes No Don't know Prefer not to answer
Connection to the municipal water supply system	% of households that would be willing to have a water meter installed in their house	[If 'Have a permanent subscription', 'Have a temporary or informal subscription' or 'Share subscription/connection with neighbours'] Do you know what a water meter is?	Yes No
Connection to the municipal water supply system	% of households that would be willing to have a water meter installed in their house	[If 'No'] A water meter is a device that measures how much water you use in your house. If you had a water meter, your municipal water charges would be based on the amount of water you use, as measured by your meter.	
Connection to the municipal water supply system	% of households that would be willing to have a water meter installed in their house	[If 'Have a permanent subscription', 'Have a temporary or informal subscription' or 'Share subscription/connection with neighbours'] Would your household be willing to have a water meter installed in your house?	Yes No Don't know Prefer not to answer

<p>Connection to the municipal water supply system</p>	<p>% of households by reason for sharing connection to municipal water supply system with neighbours</p>	<p>[If 'Share subscription/connection with neighbours'] Why does your household share its connection to the municipal water supply system with your neighbours?</p>	<p>Cannot afford the full connection fee and/or municipal water charges                  The legal status of the property prevents us from subscribing                  The legal status of the household prevents us from subscribing                  The paperwork or regulations make it difficult to subscribe                  The water service is not worth the connection fee and/or municipal water charges                  The government has a responsibility to provide free water                  Problems with civil documents                  Water office staff refused subscription without any explanation                  Other (specify)                  Don't know                  Prefer not to answer</p>
<p>Connection to the municipal water supply system</p>	<p>% of households by reason for not having a subscription to the municipal water supply system</p>	<p>[If 'Connected but do not have a subscription'] Why does your household not have a subscription to the municipal water supply system?</p>	<p>Cannot afford the connection fee and/or municipal water charges                  The legal status of the property prevents us from subscribing                  The legal status of the household prevents us from subscribing                  The paperwork or regulations make it difficult to subscribe                  The water service is not worth the connection fee and/or municipal water charges                  The government has a responsibility to provide free water                  Problems with civil documents                  Water office staff refused subscription without any explanation                  Other (specify)                  Don't know                  Prefer not to answer</p>

<p>Connection to the municipal water supply system</p>	<p>% of households by reason for not being connected to the municipal water supply system</p>	<p>[If 'Not connected to the municipal water supply'] Why is your household not connected to the municipal water supply system?</p>	<p>The municipal water supply system is not available near my property                  House/shelter does not have the facilities to connect to the municipal water supply system (e.g. pipes and/or tap)                  Cannot afford the connection fee and/or municipal water charges                  The legal status of the property prevents us from connecting/subscribing                  The legal status of the household prevents us from connecting/subscribing                  The paperwork or regulations make it difficult to connect/subscribe                  The water service is not worth the connection fee and/or municipal water charges                  Problems with civil documents                  Water office staff refused connection/subscription without any explanation                  Other (specify)                  Don't know                  Prefer not to answer</p>
<p>Connection to the municipal water supply system</p>	<p>% of households without a subscription to the municipal water supply system that would like to have one</p>	<p>[If 'Share with neighbours', 'Connected but do not have a subscription' or 'Not connected to the municipal water supply'] Would your household like to have its own subscription to the municipal water supply system?</p>	<p>Yes                  No                  Don't know                  Prefer not to answer</p>
<p>Connection to the municipal water supply system</p>	<p>% of households that require assistance to subscribe to the municipal water supply system, by type of assistance</p>	<p>[If 'Share with neighbours', 'Connected but do not have a subscription' or 'Not connected to the municipal water supply'] [If 'Yes'] Does your household need some type of assistance to subscribe to the municipal water supply system?</p>	<p>Yes                  No                  Don't know                  Prefer not to answer</p>

Connection to the municipal water supply system	% of households that require assistance to subscribe to the municipal water supply system, by type of assistance	[If 'Yes'] What type of assistance?	Assistance with paperwork/regulations Assistance legalising property Assistance obtaining required civil documents Assistance dealing with water office staff Assistance paying connection fee and/or municipal water charges Other (specify) Don't know
Water supply-related complaints and redress	% of households that approached a relevant professional regarding a problem with their main water source, by type of professional approached	Has your household encountered problems with your main source of water?	Yes No Don't know Prefer not to answer
Water supply-related complaints and redress	% of households that approached a relevant professional regarding a problem with their main water source, by type of professional approached	[If 'Yes'] Whom did your household approach when you encountered problems with your main water source?	Nobody Staff of the Mosul water office Other municipal/city council staff A neighbourhood/community representative Ninewa Directorate of Water representative NGO A plumber or maintenance worker Other (specify) Don't know Prefer not to answer
Water supply-related complaints and redress	% of households that reported action being taken in response to their complaint about the water source, by time taken to resolve problem and type of professional that responded	[If 'Yes' & not 'Nobody'] Was there action taken based on your household's complaint?	Yes No Don't know Prefer not to answer

Water supply-related complaints and redress	% of households that reported action being taken in response to their complaint about the water source, by time taken to resolve problem and type of professional that responded	[If 'Yes' & not 'Nobody'] How long did it take to resolve the complaint?	Less than 1 week Between 1 and 4 weeks Between 4 weeks and 6 months Longer than 6 months It was never resolved Don't know Prefer not to answer
Water supply-related complaints and redress	% of households that reported action being taken in response to their complaint about the water source, by time taken to resolve problem and type of professional that responded	[If 'Yes'] Who attended to your household's complaint?	Nobody Staff of the Mosul water office Other municipal/city council staff A neighbourhood/community representative Ninewa Directorate of Water representative NGO A plumber or maintenance worker Other (specify) Don't know Prefer not to answer
Water supply-related complaints and redress	Three most reported complaints regarding households' main source of water	[If 'Yes'] What is your household's principal/most regular complaint about your main source of water?	inadequate quantity to meet basic household's needs; inadequate quality; irregular supply; the water is not affordable Water is unfairly distributed Water supply network is often broken/leaking other (specify) Don't know Prefer not to answer
Water supply-related complaints and redress	% of households that have reported leaks in the municipal water supply system to the Mosul water office	Has your household noticed leaks in the municipal water supply system?	Yes No Prefer not to answer
Water supply-related complaints and redress	% of households that have reported leaks in the municipal water supply system to the Mosul water office	[If 'Yes'] Has your household informed the Mosul water office about the leaks?	Yes No Prefer not to answer

Household perceptions of municipal water supply system	% of households that rate the level of service from the municipal water supply system as at least adequate	[If they selected 'Piped connection into house or yard'] How does your household rate the overall level of service from the municipal water supply system?	Excellent Good Adequate Poor Very poor Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the level of service from the municipal water supply system as at least inadequate, by reason	[If 'Poor' or 'Very poor' to 'How does your household rate the overall level of service from the municipal water supply system?'] What does your household think the reason is for the Mosul water office not being able to provide your household with adequate water supply service?	Inadequate water at source, Inadequate electricity, Insufficient number of staff, Staff not trained well enough, Mosul water office's lack of money, Lack of concern Water network in disrepair Other (specify) Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the regularity of the municipal water supply as at least adequate	[If they selected 'Piped connection into house or yard'] How does your household rate the current regularity of the water supply from the municipal water supply system?	Excellent Good Adequate Poor Very poor Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the Mosul water office's receptiveness to suggestions and complaints as at least adequate	[If they selected 'Piped connection into house or yard'] How do your household rate the Mosul water office's receptiveness to suggestions and complaints?	Excellent Good Adequate Poor Very poor Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the level of service from the municipal water supply system as the same or better now than before 2014	[If they selected 'Piped connection into house or yard'] [If 'Yes' to 'Was your household living in Mosul city prior to June 2014?'] How does your household rate the level of service from the municipal water supply system now compared to before 2014?	Much better Somewhat better Stayed the same Somewhat worse Much worse Don't know Prefer not to answer

Household perceptions of municipal water supply system	% of households that rate the level of service to their household from the municipal water supply system as the same or better than that to the rest of their neighbourhood	[If they selected 'Piped connection into house or yard'] How does your household rate the level of service from the municipal water supply system to your household compared to the rest of their neighbourhood?	Much better Somewhat better About the same Somewhat worse Much worse Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the level of service in their neighbourhood from the municipal water supply system as the same or better than that in other neighbourhoods of Mosul city	How does your household rate the level of service from the municipal water supply system in your neighborhood compared to other neighbourhoods in Mosul city?	Much better Somewhat better About the same Somewhat worse Much worse Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the level of service in their neighbourhood from the municipal water supply system as worse than that in other neighbourhoods of Mosul city, by reason	[If 'Somewhat worse' or 'Much worse'] How is the level of service worse in your neighbourhood compared to other neighbourhoods in Mosul city?	Water is supplied for less hours per day A smaller quantity of water is supplied The hours that water is supplied are less convenient Municipal water charges are higher Water quality is poorer Water pressure is lower Water supply infrastructure is poorer/more damaged Less water supply infrastructure available Other (specify) Prefer not to answer
Household perceptions of municipal water supply system	% of households that rate the level of service in their neighbourhood from the municipal water supply system as worse than that in other neighbourhoods of Mosul city, by reason	[If 'Somewhat worse' or 'Much worse'] Why is the level of service worse in your neighbourhood compared to other neighbourhoods in Mosul city?	Text

Household perceptions of municipal water supply system	% of households that believe the majority of municipal water supply system users pay for the service	Do you think that the majority of people that use water from the municipal water supply system pay for it?	Yes No Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that believe the Mosul water office attends to leaks in the municipal water supply system in a timely and effective way	Does your household think the Mosul water office attends to leaks in the municipal water supply system in a timely and effective way?	Yes No Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that believe the Mosul water office maintains and upgrades the municipal water supply system on a regular basis	Does your household think the Mosul water office maintains and upgrades the municipal water supply system on a regular basis?	Yes No Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that have received outreach from the Mosul water office	Has your household received any outreach from the Mosul water office in the form of meetings or outreach campaigns?	Yes No Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that trust the Mosul water office to try to improve water supply services for the inhabitants of Mosul	Does your household trust the Mosul water office to try to improve water supply services for the inhabitants of Mosul?	Yes No Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that do not trust the Mosul water office to try to improve water supply services for the inhabitants of Mosul, by reason	[If 'No'] Why not?	Text
Household perceptions of municipal water supply system	% of households that believe that municipal water service users should engage in certain actions to build the Mosul water office's trust	What should, if anything, municipal water service users do to build the Mosul water office's trust in them?	Nothing Pay their bills, Report leaks when discovered, Conserve water Other (specify) Don't know Prefer not to answer



	in them, by type of action		
Household perceptions of municipal water supply system	Most reported suggestions or advice to the Mosul water office to improve the water supply services	What are your suggestions or advice to the Mosul water office to improve the water supply services?	Increase the amount of hours per day that water is supplied, Make the hours when water is supplied more convenient, Improve the quality of the water, Reduce the price of the water service, Increase water pressure Improve existing infrastructure of the water supply system Construct new infrastructure for the water supply system Extend the water supply network into new areas of the city Repair leaks in the water pipes Other (specify) Don't know Prefer not to answer
Household perceptions of municipal water supply system	% of households that believe they can help the Mosul water office improve its water supply services, by type of help	How can your household help the Mosul water office improve its water supply services?	Cannot help Pay our bills, Report leaks when discovered, Conserve water Other (specify) Don't know Prefer not to answer
Household perceptions of municipal water supply system	Most reported ways that households have been engaged by the Mosul water office	Has your household been engaged by the Mosul water officer before?	Yes No Don't know Prefer not to answer

<p>Household perceptions of municipal water supply system</p>	<p>Most reported ways that households have been engaged by the Mosul water office</p>	<p>[If they selected 'Yes'] How was your household engaged by the Mosul water office?</p>	<p>Face to face (at home) with a water office representative,                  Face to face (in office/other venue) with a water office representative,                  Through community groups or leaders,                  Phone call,                  SMS,                  E-mail,                  Letter,                  Twitter,                  Facebook,                  WhatsApp,                  Complaints/suggestions box,                  Billboards,                  Posters,                  Leaflets,                  Other (specify)                  Prefer not to answer</p>
<p>Household perceptions of municipal water supply system</p>	<p>Most reported ways that households would prefer to be engaged by the Mosul water office</p>	<p>How would your household like to be engaged by the Mosul water office?</p>	<p>Prefer not to be engaged                  Face to face (at home) with a water office representative,                  Face to face (in office/other venue) with a water office representative,                  Through community groups or leaders,                  Phone call,                  SMS,                  E-mail,                  Letter,                  Twitter,                  Facebook,                  WhatsApp,                  Complaints/suggestions box,                  Billboards,                  Posters,                  Leaflets,                  Other (specify)                  Prefer not to answer</p>

Key characteristics	Consent to take and share telephone number	Thank you for your participation. The International Committee of the Red Cross would like to have your telephone number so they can contact you for a follow-up interview by phone later this year. Your number will not be shared with the authorities or other organisations apart from the International Committee of the Red Cross. Providing your number is voluntary. Are you willing to provide your telephone number so we can share it with the International Committee of the Red Cross?	Yes No
Key characteristics	Telephone number	Respondent's telephone number:	integer
Key characteristics	Consent to share GPS coordinates	The International Committee of the Red Cross would also like to know where this interview was conducted so they can understand the specific needs of this area. Do you provide your consent for us to share this location with the International Committee of the Red Cross?	Yes No

## 6. Monitoring & Evaluation Plan

IMPACT Objective	External M&E Indicator	Internal M&E Indicator	Focal point	Tool	Will indicator be tracked?
<b>Humanitarian stakeholders are accessing IMPACT products</b>	Number of humanitarian organisations accessing IMPACT services/products  Number of individuals accessing IMPACT services/products	# of downloads of x product from Resource Center	Country request to HQ	User_log	<input checked="" type="checkbox"/> Yes
		# of downloads of x product from Relief Web	Country request to HQ		<input type="checkbox"/> Yes
		# of downloads of x product from Country level platforms	Country team		<input type="checkbox"/> Yes
		# of page clicks on x product from REACH global newsletter	Country request to HQ		<input type="checkbox"/> Yes
		# of page clicks on x product from country newsletter, sendingBlue, bit.ly	Country team		<input checked="" type="checkbox"/> Yes
		# of visits to x webmap/x dashboard	Country request to HQ		<input type="checkbox"/> Yes
<b>IMPACT activities contribute to better program implementation and coordination of the humanitarian response</b>	Number of humanitarian organisations utilizing IMPACT services/products	# references in HPC documents (HNO, SRP, Flash appeals, Cluster/sector strategies)	Country team	Reference_log	<i>[List here relevant HPC-documents to be monitored: E.g. Iraq HNO 2018, Iraq Flash Appeal Mosul, Shelter Cluster strategy]</i>
# references in single agency documents		<i>[List here relevant agency-documents to be monitored: E.g. UNHCR Country Strategy, UNICEF WASH]</i>			

					<i>Response Strategy]</i>
<b>Humanitarian stakeholders are using IMPACT products</b>	Humanitarian actors use IMPACT evidence/products as a basis for decision making, aid planning and delivery  Number of humanitarian documents (HNO, HRP, cluster/agency strategic plans, etc.) directly informed by IMPACT products	Perceived relevance of IMPACT country-programs	Country team	Usage_Feedback and Usage_Survey template	Partner feedback survey to be conducted in mid-2023.
		Perceived usefulness and influence of IMPACT outputs			
		Recommendations to strengthen IMPACT programs			
		Perceived capacity of IMPACT staff			
		Perceived quality of outputs/programs			
	Recommendations to strengthen IMPACT programs				
<b>Humanitarian stakeholders are engaged in IMPACT programs throughout the research cycle</b>	Number and/or percentage of humanitarian organizations directly contributing to IMPACT programs ( <i>providing resources, participating to presentations, etc.</i> )	# of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation	Country team	Engagement log	<input type="checkbox"/> Yes
		# of organisations/clusters inputting in research design and joint analysis			<input type="checkbox"/> Yes
		# of organisations/clusters attending briefings on findings;			<input type="checkbox"/> Yes