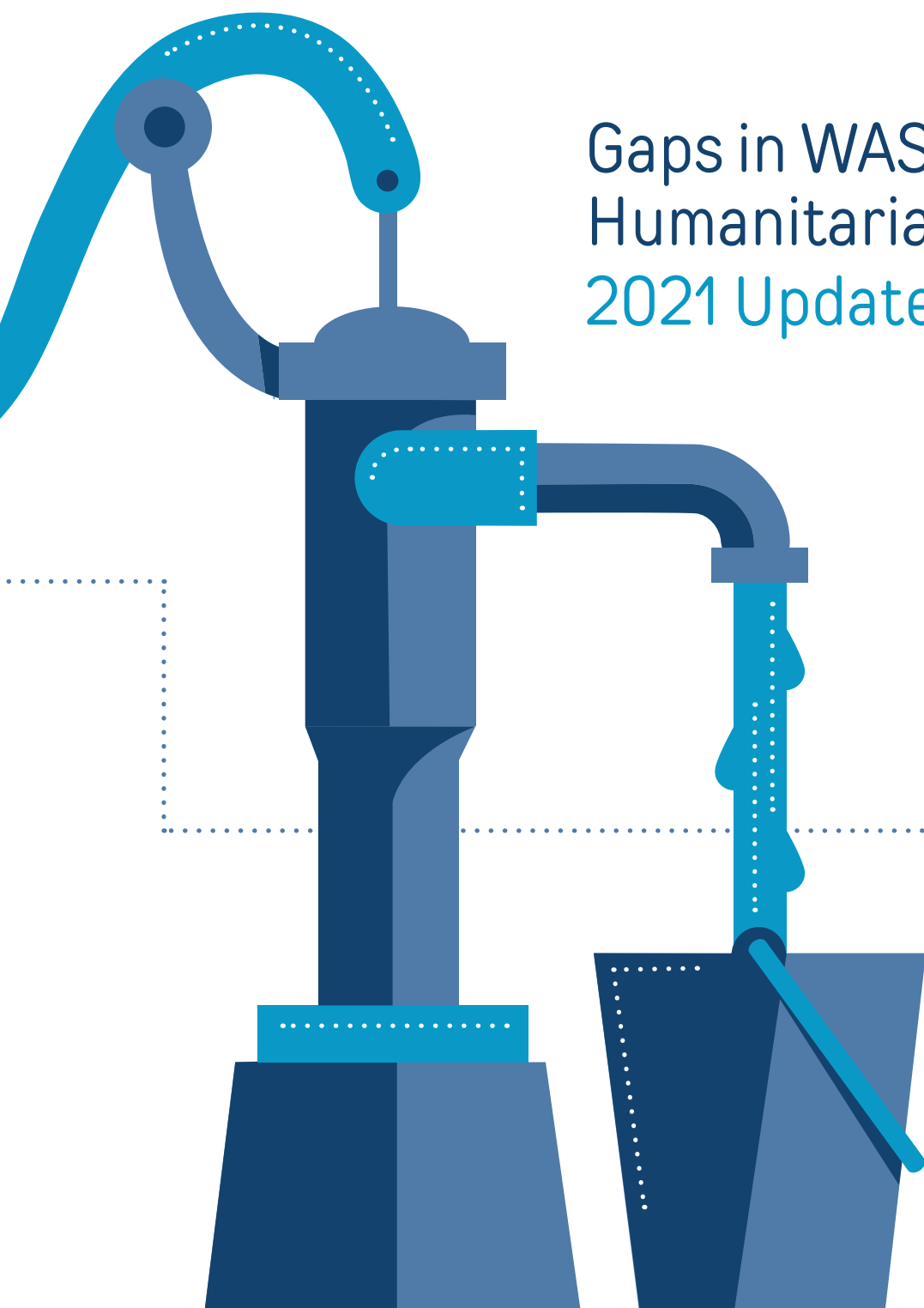Gap Analysis
2021:
full report

# Gaps in WASH in Humanitarian Response:
## 2021 Update

# Gaps in WASH in Humanitarian Response: 2021 Update

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# Foreword

By Cecilie Hestbæk (Elrha), Franck Bouvet (Global WASH Cluster [GWC]), Andy Bastable (Oxfam)

There has long been a growing recognition in the humanitarian sector that people affected by crises should have more say in the type of assistance they get and how they get it. Most recently, in July 2021 a reinforced commitment to the Participation Revolution within the Grand Bargain 2.0 was made by the biggest donors and humanitarian organisations, demonstrating that meaningful participation by aid recipients in humanitarian response is a key priority for the humanitarian sector.

This 2021 WASH Gap Analysis - the most extensive research project of its kind in the humanitarian sector - opens an avenue for WASH actors to gain substantial insights at a global level into the priority needs and preferences of people affected by crises across multiple contexts.

The Gap Analysis presents data on priority needs collected from over 1,700 people affected by crises across 30 countries, and highlights the gaps that are prioritised by almost 700 WASH practitioners across 24 countries and 256 global WASH actors across 64 countries. In addition, it summarises and triangulates these findings with recent grey and academic literature on pressing problems in humanitarian WASH.

As such, it sets a challenge for everyone involved in humanitarian WASH response, requiring us to explore why these gaps exist and how they can be addressed. It is an important contribution to the accountability agenda, and its findings have implications for the direct delivery of aid, the coordination of response, and for humanitarian research and innovation. The research was developed in a unique partnership between leading actors within all these fields: the GWC, Elrha and Oxfam (the three main partners), supported by Tufts University, Cranfield University and University of Leeds. The three main partners will all take a leading role in addressing the gaps, as summarised on the following pages.

3

## Innovation

**Elrha's Humanitarian Innovation Fund (HIF)** takes a problem-led approach to supporting innovation, identifying the most pressing humanitarian problems and exploring how innovation might help to solve them. Elrha's work on innovation in WASH over the past decade – which includes funding over 50 innovation projects – is built on a global Gap Analysis carried out in 2013, and subsequent research which led to further understanding of these gaps. Elrha's work in this area is guided by an expert Technical Working Group made up of leading WASH practitioners and academics.

This new Gap Analysis will help steer innovation resources and efforts to those problems identified as most important to people affected by crises. Elrha will work with experts to understand the nuances of the most pressing problems as articulated by aid recipients themselves, triangulate with what practitioners and literature highlight as the main gaps, and analyse the opportunities for innovation. Ultimately, Elrha will design new innovation funding calls and other support mechanisms to ensure that investment in WASH innovation is focussed on where it can be most impactful.

## Coordination

The **GWC's** support to promote key initiatives, such as the Accountability and Quality Assurance (AQA), emphasises the need for a transformative shift from measuring the quantity of aid delivered to the quality of aid delivery as experienced by those receiving it. To do this, we must engage with the people affected by crises to set the agenda and priorities for aid, and the new Gap Analysis provides an important piece of this picture. The GWC will encourage partners to use the results of the Gap Analysis at a national level, so that they can contextualise the findings, explore further gaps in data, and consolidate

knowledge based on the individual country and local contexts. Furthermore, the GWC will continue to support global knowledge management efforts and to facilitate the collection and analysis of additional knowledge gaps and their root causes.

## Humanitarian responders

**Oxfam**, as a large-scale humanitarian WASH provider, has recently pioneered a range of user-centred WASH initiatives. Oxfam advocates for WASH services that are built and iterated through cycles of feedback from people affected by crises, and the organisation plays an important role, globally, in understanding and meeting the WASH needs in emergencies. Oxfam will focus its research and innovation agenda on the areas identified in the Gap Analysis and encourages other humanitarian organisations to follow suit. The 2021 Gap Analysis highlights a range of important themes, and collaborative effort is now required for WASH agencies and GWC to better understand why these gaps exist and to explore where more attention and investment needs to be focussed.

We must hold ourselves accountable to the needs and expectations of the people affected by crises we are seeking to support. This latest gap analysis sets out these needs. It is now up to the humanitarian WASH sector to meet them.
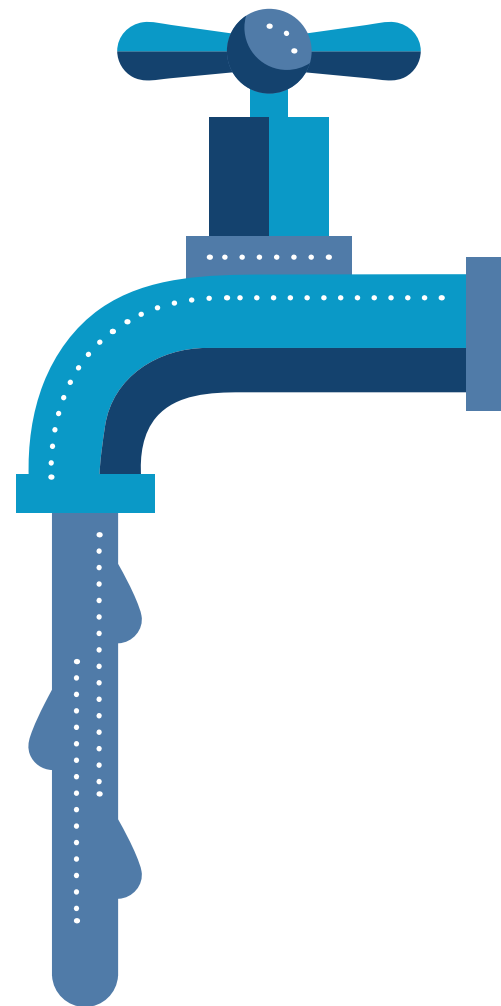
# About the lead partners

## Elrha

**We are a global charity that finds solutions to complex humanitarian problems through research and innovation.**

We fund and support work that goes on to shape the way in which people across the world are supported during a crisis. An established actor in the humanitarian community, we work in partnership with humanitarian organisations, researchers, innovators, and the private sector to tackle some of the most difficult challenges facing people all over the world. Our shared aim as collaborators is to improve the effectiveness of humanitarian response.

The innovations we fund through our HIF target better outcomes for people affected by humanitarian crises by identifying, nurturing and sharing more effective and scalable solutions. We have supported more than 200 world-class research and innovation projects, championing new ideas and different approaches to find what works in humanitarian response.

## The GWC

The GWC, led by UNICEF as the Cluster Lead Agency (CLA), is a partnership of over 80 international organisations, United Nations agencies, international non-governmental organisations, academic institutes, and donors working in the humanitarian WASH sector. As part of the UN Inter-Agency Standing Committee (IASC) Cluster System, the GWC has the primary mandate of ensuring the core coordination functions, which guide national coordination platforms at country level, are in place. The Cluster Advocacy and Support Team (CAST) has been designated to spearhead the global leadership and strategic oversight of the GWC. We work in over 30 countries to increase the capacity and resources to support effective coordination that ensures a predictable, timely and high-quality humanitarian WASH response for those most affected by crises.

# Oxfam

**Oxfam is a leading global non-profit development and humanitarian organisation with more than 75 years of experience in tackling poverty and injustice.**

Oxfam Great Britain (GB) is a member of Oxfam International, a global confederation of 20 interdependent organisations (affiliates) that works with partners and local communities.

Oxfam is one of the world's leading providers of humanitarian assistance in emergencies, with well-recognised technical expertise and thought leadership in a range of areas, including: clean water, sanitation, and public health; gender and protection; food security, livelihoods and economic recovery; and disaster risk reduction. We have expertise in working in the most fragile and vulnerable contexts, and with refugee, displaced and host communities.

Oxfam embraces a holistic approach to help people overcome poverty in three ways:

## 1. Humanitarian

We work as a confederation to take action to save lives in emergencies and help people cope when the worst happens.

## 2. Development

We work for the long-term too, so that future generations can have the opportunity to beat poverty, for good.

## 3. Campaigning

We also believe in tackling the injustices that keep people poor.

# About the lead author

## About Tufts

Tufts is a leader in American higher education, distinctive for its success as a moderately-sized university that excels at research and providing students with a personal experience. Our unique combination of research and liberal arts offerings attracts students, faculty and staff who thrive in our environment of curiosity, creativity and engagement.

Tufts School of Engineering is an academic community where:

- Students prepare themselves to be well-rounded professionals, responsible leaders, and lifelong learners through a rigorous engineering education enhanced by interdisciplinary connections in arts, humanities, and science

- Faculty members strive to develop the next generation of engineers; and seek, through research, to create knowledge and technology for the benefit of the planet and its population

- Diversity and inclusion are embraced to empower all students, faculty, and staff to succeed in their academic and professional endeavors.

In the Lantagne Group at Tufts University School of Engineering we seek to reduce the burden of infectious diseases by investigating and evaluating the effectiveness of water, sanitation, and hygiene interventions in low-income and humanitarian contexts by completing laboratory research, field evaluations, and policy work (including data analysis).

# Acknowledgments

**Suggested Citation**

UKaid
from the British people

Ministry of Foreign Affairs

# Abbreviations

| | |
|---|---|
| **CHNRI** | Child Health and Nutrition Research Initiative |
| **FGD** | Focus group discussion |
| **FSM** | Feacal sludge management |
| **GTFCC** | Global Task Force on Cholera Control |
| **GWC** | Global WASH Cluster |
| **HIF** | Humanitarian Innovation Fund |
| **HWT** | Household water treatment |
| **LMIC** | Low- and middle-income countries |
| **MHM** | Menstrual hygiene management |
| **NGO** | Non-governmental organisation |
| **UN** | United Nations |
| **UNHCR** | United Nations High Commissioner for Refugees |
| **UNICEF** | United Nations Children's Emergency Fund |
| **WASH** | Water, sanitation and hygiene |
| **WHO** | World Health Organization |
| **WRM** | Water resource management |
| **WSP** | Water supply management |

# Table of Contents

# List of Figures

# List of Tables

# Executive Summary

# Executive Summary

Humanitarian emergencies, including natural hazard-driven disasters, conflicts, and disease outbreaks, are occurring at increasing rates and affecting a growing number of people worldwide. With many more people at risk, evidence-based strategies - including in water, sanitation, and hygiene (WASH) - are needed to provide the most effective interventions supporting the wellbeing, safety and dignity of people affected by crises, and to prevent and control communicable diseases. A previous gap analysis (from 2013), identified spaces for innovation in emergency WASH, and has been used for the past eight years to identify funding priorities. In 2020, data collection began to update that gap analysis with a goal to have a wider evidence base, and to strengthen and improve accountability to affected populations. We now present the updated work: Gaps in WASH in Humanitarian Response - 2021 Update ('the 2021 Gap Analysis').

To complete the 2021 Gap Analysis, data were collected from two different streams:

1) **Direct feedback** including FGDs with people affected by crises and WASH practitioners, a global survey, and case studies

2) **Literature reviews** including both previous reviews and new reviews.

Data were synthesised by each data source, then combined into overall gaps and compared. Gaps were extracted and categorised into five themes (water, sanitation, hygiene, general WASH, and cross-cutting), 19 major categories, and 58 categories of gaps.

Gaps were gathered from 154 FGDs with people affected by crises, 66 FGDs with WASH practitioners, 246 respondents to the global survey, three country case studies, and 614 peer–reviewed and grey literature documents. A total of 6,039 gaps were identified, including 2,888 (48%) from direct feedback and 3,151 (52%) from literature reviews.

We found different groups of stakeholders had different perspectives and thoughts on the most important WASH gaps.

## Table 6:
### Top 10 Gaps by Data Source

The table below (Table 6 in this report, at page 72) summarises the findings across the four data sources. The gaps are ranked in descending order by the frequency with which they were mentioned:

| Gap Rank | FGDs with People Affected by Crises | FGDs with Practitioners | Online Survey | Literature Reviews |
|---|---|---|---|---|
| 1 | Need for water supply and provision | Need for water supply and provision | Need for collaboration and coordination (including governance) | Weak hygiene practices and knowledge |
| 2 | Need for sanitation access and coverage | Improper solid waste disposal | Need for WASH staff capacity/training/expertise | Need for water supply and provision |
| 3 | Improper solid waste disposal | Weak hygiene practices and knowledge | Need for community engagement | Research WASH |
| 4 | Lack of access to hygiene tools, kits, and products | Need to repair/improve current water supply | Need for water supply and provision | Need to link with other sectors |
| 5 | Need to repair/improve current water supply | Need for sanitation access and coverage | Need for sustainability and ownership | Need for collaboration and coordination (including governance) |
| 6 | Lack of containers, and poor storage practices | Need for Faecal Sludge Management (FSM) | Need for WASH funding | Need for sanitation access and coverage |
| 7 | Poor quality sanitation services | Poor source water quality | Improper solid waste disposal | Need for WASH staff capacity/training/expertise |
| 8 | Weak hygiene practices and knowledge | Need for collaboration and coordination (including governance) | Need for sanitation access and coverage | Poor quality sanitation services |
| 9 | Lack of Menstrual Hygiene Management (MHM) materials | Need for water supply planning | Need to link with other sectors | Need for Faecal Sludge Management (FSM) |
| 10 | Need for water supply planning | Poor quality sanitation services | Need for data sharing, tools, and documents | Need for WASH funding |

Overall, people affected by crises primarily wanted services: water, sanitation, solid waste disposal, and hygiene items. Global survey respondents primarily wanted better mechanisms to provide services: collaboration with goverment, increased WASH expertise, and community engagement. WASH practitioners fell in the middle, and the literature expressed a need for a health impact framework for supporting WASH interventions.

As we move to address these gaps and improve WASH programming in humanitarian response, considering whose perspective and needs we are trying to meet is critical to being effective, as well as to further localising our work and reach populations affected by crises.

In conclusion, we found that people affected by crises want the **what** (services), responders want the **how** (to provide better services), and researchers want to provide the **why** (a health impact framework supporting WASH).
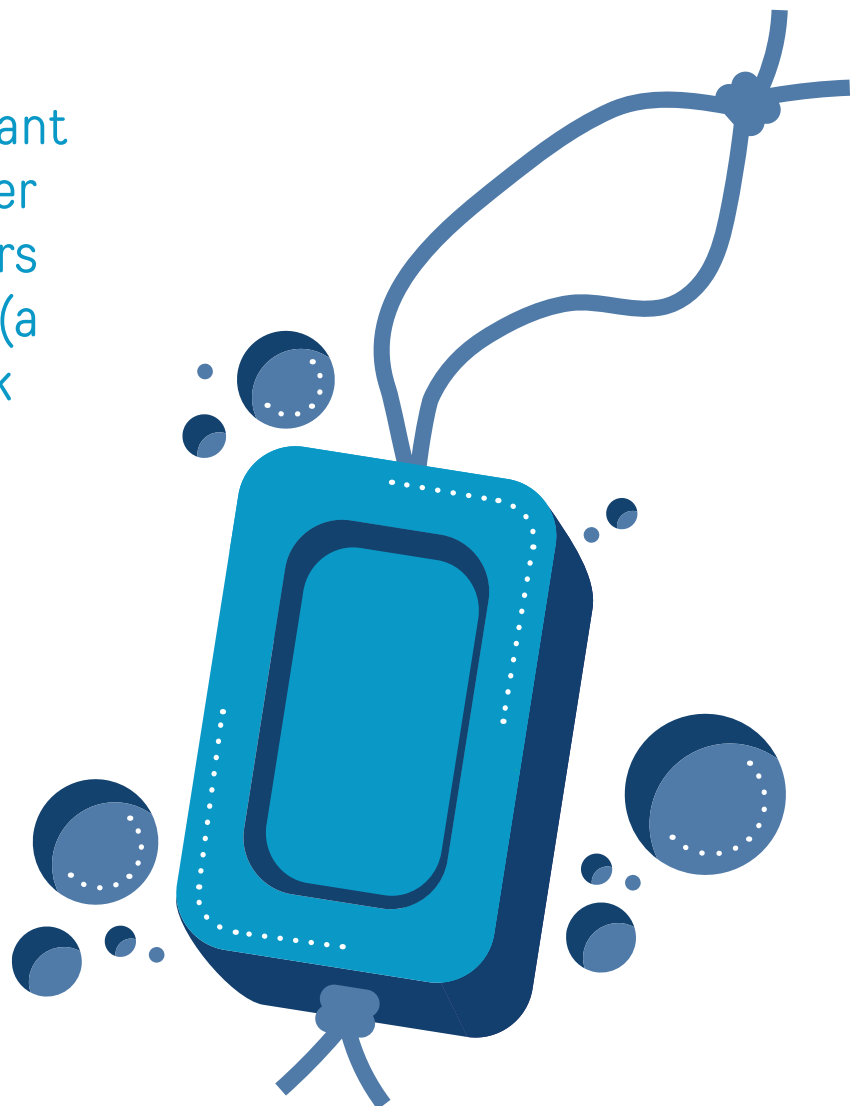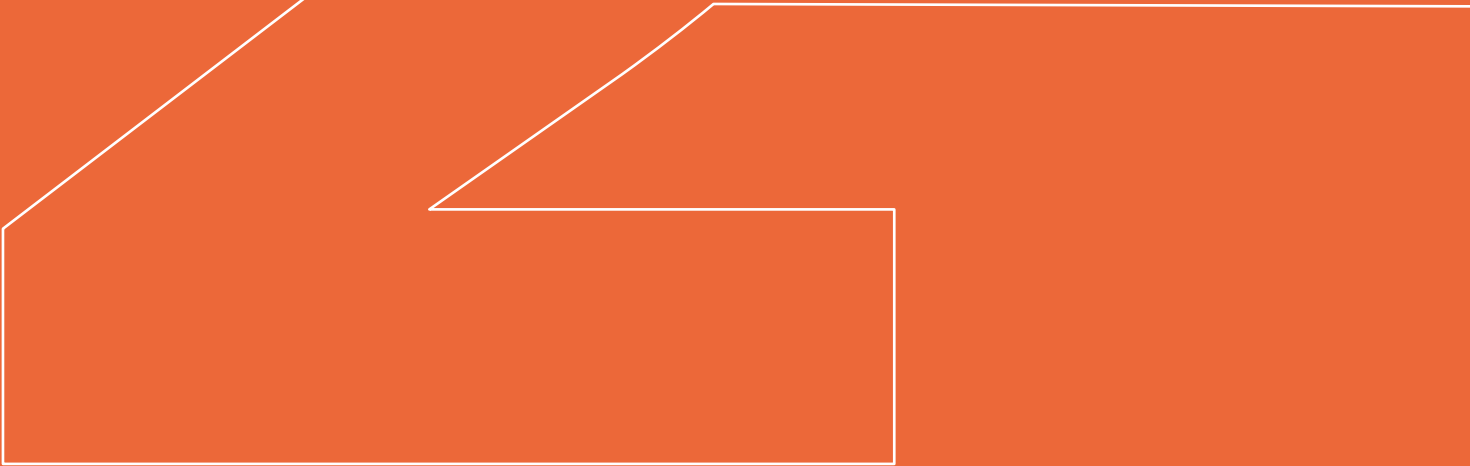
# Introduction

# Introduction

**Humanitarian emergencies, including disasters, conflicts, and disease outbreaks, are occurring at increasing rates and affecting a growing number of people.**

Disasters triggered by natural hazards, such as earthquakes, hurricanes, flooding events, or droughts, affect more than 200 million people annually, and can cause human displacement.[1] Climate change is expected to increase the scale and frequency of these disasters, and the rapidly expanding populations in disaster-prone regions mean a larger number of people may be impacted.[2] Currently, more than two billion people are potentially threatened by conflict and violence.[3] Recent and ongoing humanitarian emergencies have led to more than 79 million displaced persons worldwide, the highest number ever recorded.[4] At the same time, disease outbreaks have increased in number and diversity.[5]

With a growing number of people at risk, evidence-based strategies to provide interventions to people affected by crises are needed to prevent and control communicable diseases.[6,7] Emergency WASH interventions should provide access to safe water and sanitation and promote good hygiene practices with dignity, comfort, and security.[7] Water interventions aim to increase water quantity and/or improve water quality; sanitation interventions aim to isolate faeces from the environment; hand hygiene interventions aim to promote awareness of disease risk among people affected by crises and motivate and equip people to prevent disease transmission via hands; and, environmental hygiene interventions reduce risks by disinfecting household objects and managing rubbish.[8]

**1**   EM-DAT The International Disaster Database.

**2**   Walker, P.; Glasser, J.; Kambli, S., Climate Change as a Driver of Humanitarian Crises and Response. Feinstein International Center **2012**.

**3**   IISS International Institute for Strategic Studies.

**4**   UNHCR Figures at a Glance.

**5**   Smith, K. F.; Goldberg, M.; Rosenthal, S.; Carlson, L.; Chen, J.; Chen, C.; Ramachandran, S., Global rise in human infectious disease outbreaks. Journal of the Royal Society, Interface / the Royal Society 2014, 11, (101), 20140950.

**6**   Toole, M., Mass population displacement. A global public health challenge. Infect Dis Clin North Am **1995**, 9, (2), 353-66.

**7**   Sphere Humanitarian Charter and Minimum Standards in Disaster Response.

**8**   Yates, T.; Vujcic, J.; Leandre Joseph, M.; Gallandat, K.; Lantagne, D., Water, sanitation, and hygiene interventions in outbreak response: a synthesis of evidence. Waterlines **2018**, 38, (1), 5-30.

While WASH interventions are commonly implemented as part of humanitarian response activities, two 2015 systematic reviews concluded that there is a lack of data and evidence on cholera–response and health impact in humanitarian emergencies.[9,10]

This weak evidence base has been attributed to: prioritising response activities over research; difficulty of conducting research; lack of technical knowledge and personnel for data collection; and, lack of clear goals for using collected data.[11] In 2018, two broader evidence syntheses reviews were conducted, evaluating quantitative and qualitative outcomes, impacts, and influencing contextual factors contributing to programme effectiveness from published and grey literature. These reviews concluded that WASH interventions consistently reduced both the risk of disease and the risk of disease transmission in outbreak and short-term humanitarian contexts; however, programme design and beneficiary preferences were important considerations to ensure effectiveness.[8,12] Additionally, these reviews identified evidence gaps and commonly implemented but under-researched interventions.

In 2013, the HIF funded the 'Gap Analysis in Emergency Water, Sanitation and Hygiene Promotion' (which we will refer to as 'the 2013 Gap Analysis').[13] The main goal was to identify the major challenges that require innovative solutions in emergency WASH. The project aimed to identify different stakeholder perspectives of the gaps and spaces for innovation in humanitarian WASH. Over the past eight years, the HIF has used this gap analysis to identify funding priorities.

9 Ramesh, A.; Blanchet, K.; Ensink, J.; Roberts, B., Evidence on the Effectiveness of Water, Sanitation, and Hygiene (WASH) Interventions on Health Outcomes in Humanitarian Crises: A Systematic Review. PLoS One **2015**, 10, (9).

10 Taylor, D. L.; Kahawita, T. M.; Cairncross, S.; Ensink, J. H., The Impact of Water, Sanitation and Hygiene Interventions to Control Cholera: A Systematic Review. PLoS One **2015**, 10, (8).

11 Spiegel, P. B.; Le, P.; Ververs, M. T.; Salama, P., Occurrence and overlap of natural disasters, complex emergencies and epidemics during the past decade (1995–2004). Confl Health **2007**, 1.

12 Yates, T.; Vujcic, J.; Leandre Joseph, M.; Gallandat, K.; Lantagne, D., Efficacy and effectiveness of water, sanitation, and hygiene interventions in emergencies in low- and middle-income countries: a systematic review. Waterlines **2018**, 37, (1).

13 Bastable, A.; Russell, L., Gap Analysis in Emergency Water, Sanitation and Hygiene Promotion. HIF and Oxfam: London, UK, **2013**.

In 2020, the HIF, working in a broad partnership with the GWC, Oxfam (supported by consultant Jean McCluskey), Tufts University, Cranfield University and University of Leeds carried out extensive data collection to update the 2013 Gap Analysis, supported by a Review Group of experts.

The research was led by the following question:

'What are the priority gaps in humanitarian water, sanitation, and hygiene systems and responses that are most limiting the humanitarian sector's potential to meet essential needs, minimise water, sanitation, and hygiene–related disease, restore life with dignity to people experiencing emergencies, and strengthen resilience?'

The goal was to explore this in the most comprehensive manner possible, and include as many sources and gaps as possible, from the existing literature and directly from responders and people affected by crises. The methodology specifically sought to strengthen the latter component in order to improve accountability to those experiencing the problem.

We now present this work: Gaps in WASH in Humanitarian Response: 2021 Update ('the 2021 Gap Analysis').
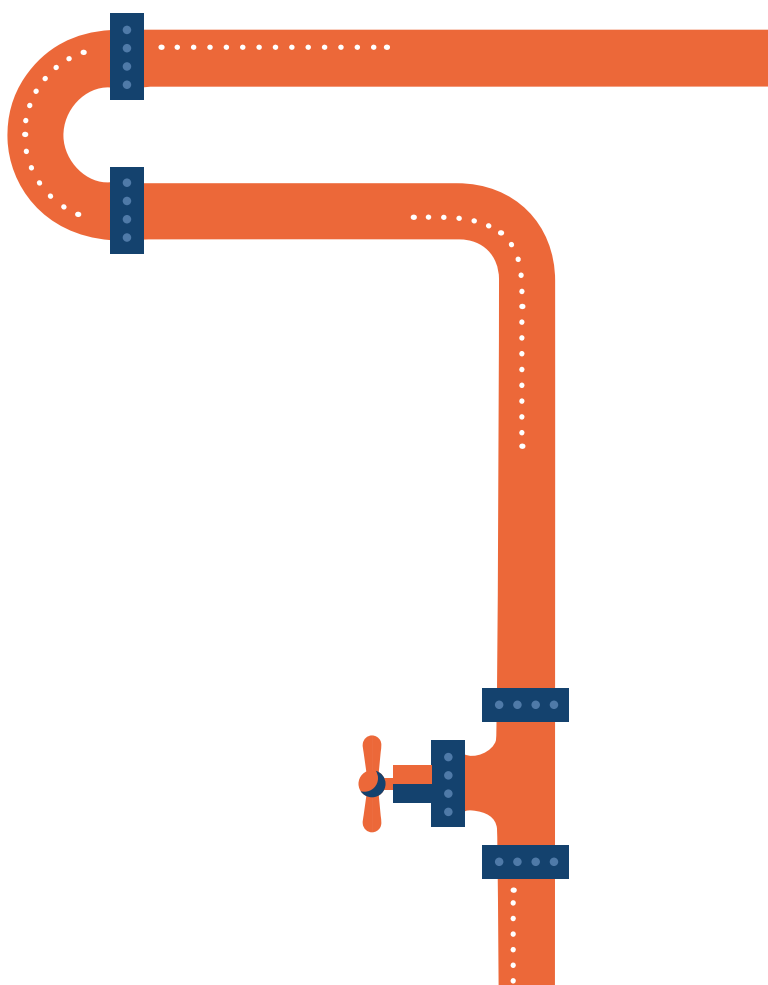
# Research Methods

# Research Methods

The 2021 Gap Analysis provides a specific definition of a WASH gap (see definition below). This definition was introduced to all participants during data collection.

## 2021 Gap definition
### As given to the FGD facilitators

- Any issue/gap/challenge that affects the community's ability to have access to safe, adequate, appropriate and dignified water, excreta disposal (toilets), hygiene knowledge, hygiene items, solid waste management, vector control

- Any issue/gap/challenge that affects the community's ability to participate in WASH programme decision-making

- Any issue/gap/challenge that affects the community's ability to get information on WASH programmes, or to give feedback on WASH programmes and access

- Any issue/gap/challenge that affects an individual's dignity in accessing WASH services

- Any issue/gap/challenge that affects the environment in providing WASH services

- Any issue/gap/challenge that affects the community's ability to sustain access to WASH (the community can also refer to government or local authorities)

(Each is a recognised gap in its own right.)

To complete the 2021 Gap Analysis, data were collected from two different streams (see figure 1):

1) **Direct feedback** including FGDs with people affected by crises and WASH practitioners, a global survey, and case studies

2) **Literature reviews** including both previous reviews and new reviews.

Data were synthesised by each data source, then combined into overall gaps and compared. The methods of collection for each of these individual data streams, and the syntheses, are described on the following pages.

## Figure 1:

Data sources used for 2021 Gap Analysis

| Overall Conclusions | |
| --- | --- |
| **Direct Feedback** | **Literature Reviews** |
| Global survey with 246 respondents | Previous Reviews |
| 220 FGDs | New Reviews (This Work) |
| 3 Case Studies | |
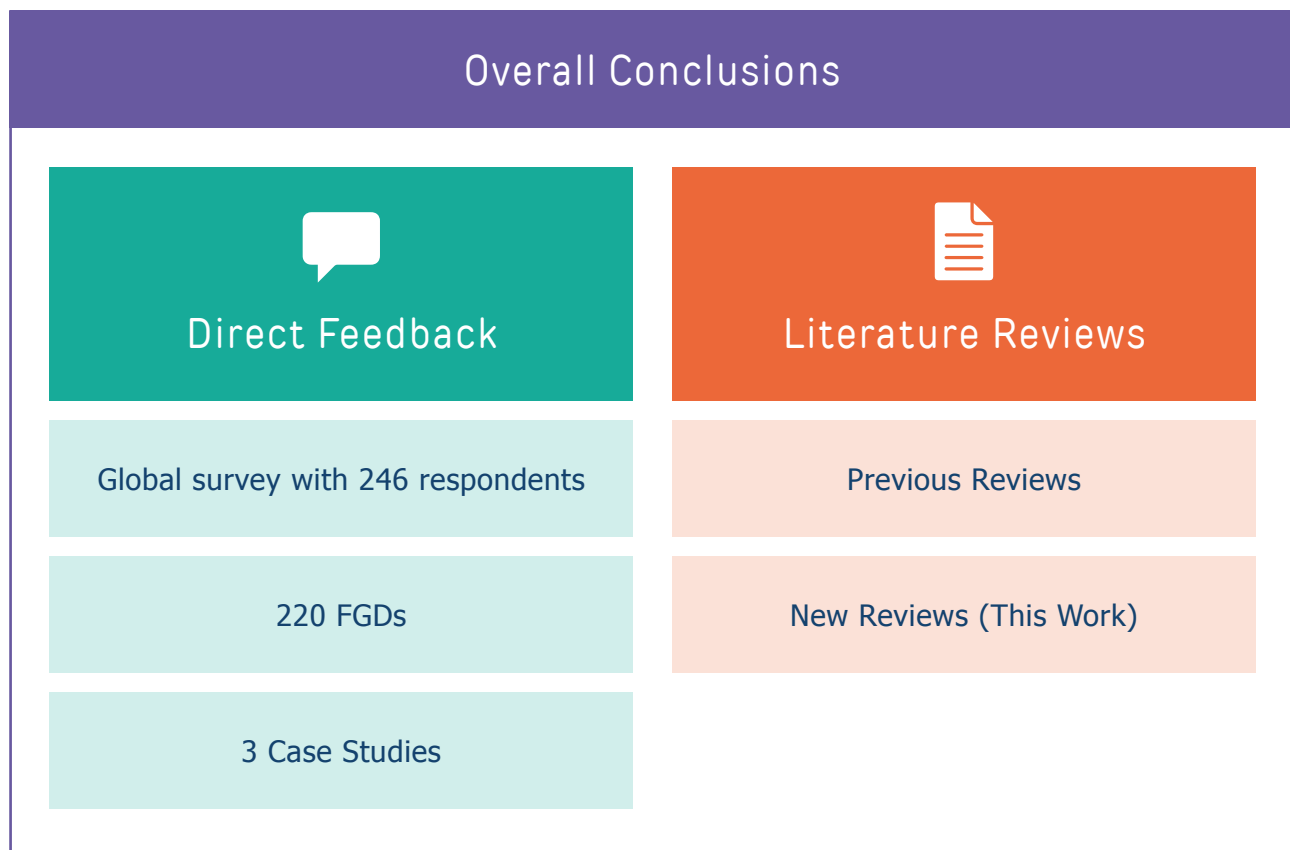
# 3.1 Direct Feedback

Direct feedback was solicited via:

1) FGDs with people affected by crises

2) FGDs with WASH Practitioners

3) A global survey of the humanitarian WASH community of practice

4) Case studies from selected contexts.

This is the most comprehensive global data collection of its kind, and significantly exceeds the scope of the 2013 Gap Analysis, where FGDs with affected populations were carried out in six countries with a total of 452 people. In 2020, FGDs were carried out with 1,738 people affected by crises and 682 WASH practitioners.

As well as its increased breadth, the 2021 Gap Analysis is also considerably more influenced by the perceptions of people affected by crises. More than twice as many FGDs were conducted with people affected by crises than with WASH practitioners, providing a strong evidence base for where the WASH sector might focus attention to increase its impact and address the problems that matter most to people affected by crises.

Focus group discussions with responders and people affected by crises were conducted to identify and rank gaps. These FGDs were facilitated by experienced humanitarian personnel specifically trained by Oxfam to conduct them. Training included a 90-minute video on ethics, and reviewing a 59-page FGD training protocol. Focus group discussions were conducted in areas where the facilitators were already working, and included men and women of all ages and with and without disabilities. Each facilitator was asked to conduct between one and three FGDs.

The FGD had four activities:

1) Discuss components of, purpose of, and terms related to, WASH

2) Define and describe example gaps

3) Identify gaps

4) Rank gaps.

After completing the approximately 90-minute FGD, the facilitator summarised the information in Qualtrics and it was then submitted online to Oxfam with accompanying consent documentation.

The global survey was conducted to identify and rank gaps, and included two sections: demographics and gaps. Demographic information requested included: role, WASH speciality, organisation type, geographic focus, and years of experience. Respondents were then asked to list and rank gaps, and to describe the gaps' importance and how to resolve them.

Case studies were conducted to support additional depth of analysis on specific issues that were raised in the gaps identified. Three case studies were conducted in countries that Oxfam had contacts within and which could provide input into the topics identified in the gaps as needing more detailed context. These included phone interviews and/or FGDs with organisational staff working on relevant programmes.

The direct feedback protocol was reviewed and approved by the Ethics Committee of Cranfield University. Tufts University was approved by the Tufts University IRB to analyse de-identified data. Participants in direct feedback activities signed an informed consent form before participating in each activity. Additionally, for reciprocity and accountability, each FGD facilitator was encouraged to use findings immediately, where relevant, to improve the local response. Results will be published in a range of relevant languages.

Finally, an important part of the ethics strategy for this research is that the partners plan to engage with national cluster leads and facilitators in the contexts represented in the dataset, using the findings to directly and immediately improve WASH provision.

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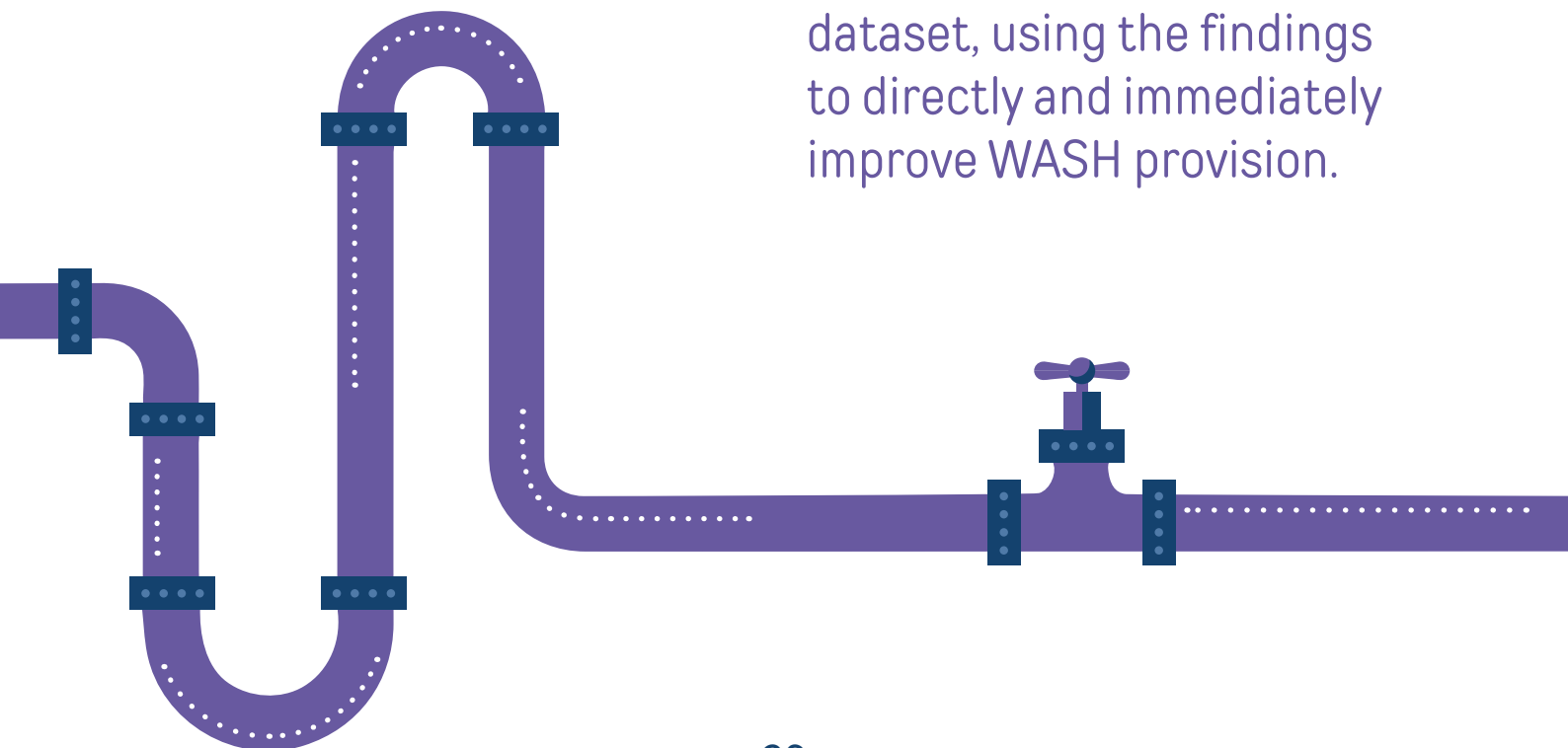
# 3.2 Existing Literature

To summarise existing literature on WASH gaps in humanitarian response we:

1) Extracted WASH gaps from two different previous gap analyses or reviews, including:

• The 2013 gap analysis project[13]

• The 2018 Yates systematic reviews[8,12]

2) Completed three reviews to update and supplement the previously collected data, specifically for this project:

• A literature review on gaps in the published WASH literature in humanitarian response

• A literature review on gaps in the published WASH literature in low- and middle-income countries (LMIC)

• A grey literature review of LMIC WASH humanitarian agency documents.

The goal of this broad inclusion of previously and newly collected data was to summarise as much information from the literature on gaps as possible. Each of these documents/reviews is briefly described on the following pages.

## 3.2.1 Previous Reviews

In the 2013 Gap Analysis, data were collected from literature reviews, FGDs in countries, facilitated workshop discussions with WASH Clusters and Forums in five countries, an online survey, two facilitated gap analysis sessions, and consultations with organisations.[13] Overall, a total of 909 people were consulted across 40 countries.

In the 2018 Yates' systematic reviews on the efficacy and effectiveness of WASH interventions in emergencies and outbreaks,

over 15,000 published and grey literature documents from 1995-2016 were reviewed. In the emergencies reviews, 106 documents met the inclusion criteria of reporting use of service (e.g. confirmed use), final impact (e.g. disease reduction), and non-health outcomes (e.g. preference) in emergencies and outbreaks. In the outbreak reviews, that figure was 47.[8,12] These reviews are summarised in this report, as they provide the most comprehensive summary of WASH literature through to 2016.

# 3.2.2 New Reviews

The existing literature above is not completely inclusive through to 2021. To fill in the gaps in the literature, the project team for this work completed three literature reviews and incorporated results of a fourth review. That work was as follows:

- To complete a **general published literature review on WASH in LMIC/humanitarian contexts**, peer-reviewed literature was searched via the Scopus electronic database. A combination of keywords was used in the search, and search results had to include at least one keyword from each of three categories:

1) Emergency, disaster, humanitarian, conflict, and relief

2) Water supply, water resource, water security, sanitation, hygiene, menstruation, WASH, and WATSAN

3) Innovation, practice, policy, public health, behaviour, technology, technical, participation, and accountability.

The search was limited to publications after 2013

- To complete a **specific published literature review on gaps in WASH**, peer-reviewed literature was searched via the PubMed electronic database for articles between 2014 and 2020. A combination of keywords was used in the search, including: 'water, sanitation and hygiene'; 'low-income countries'; 'under-researched'; 'humanitarian'; and 'research gaps'

- To complete a **grey literature review on gaps in WASH**, key humanitarian agencies and consultants were contacted and asked to share documents that may help to identify any gaps. Agencies contacted included UNICEF, UNHCR, REACH, Asia Foundation, BORDA, Concern, CARE, Oxfam, Mercy Without Limits, International Medical Corps, Solidarités International, Save the Children, Norwegian Refugee Council, Médecins Sans Frontières, ADO Yemen, GOAL Syria, World Concern Myanmar, and the WASH Sector Inter-Sector Coordination Group.

# **3.3** Data Extraction, Synthesis, and Summary

Gaps from the two data streams of direct feedback and existing literature were extracted from the files provided, organised and cleaned, and then categorised using an emerging methodology into five themes, 19 major categories, and 58 categories.

**The five themes that emerged were:**

- Water
- Hygiene
- Sanitation
- General WASH
- Cross-cutting



**The 19 major categories (cutting across theme - see details on page 30-32) were:**

- Need for safe water (W1, W2, W3, W4)
- Need for sanitation (S1, S2, S5, S6, S10)
- Need for items (W8, H1, H2, H5)
- Need for solid waste disposal (S3)
- Need FSM (S4)
- Need WASH (A1, A2, A3, A4)
- Concerns with household behaviours (W6, W7, S8, H3, H4)
- Need coordination (with partners/ government) (P1)
- Need collaboration (with community) (P2, P3, P8, P10)
- Need for collaboration with other sectors (P5, P11, P12, P13, P14)
- Cost too high (W5, S11, H6, A7)
- Concerns with gender (S7, P4)
- Barriers to implementation (S9, P6, P7)
- Need good staffing (A8)
- Need planning (W10)
- Need monitoring (W9, P9)
- Need research (W11, S12, H7, A5)
- Need funding (A6)
- Right to water (A9)

**The 58 categories (within theme) were:**

## Water

| | |
|---|---|
| **W1** | Need for water supply and provision |
| **W2** | Need to repair/improve current water supply |
| **W3** | Poor source water quality |
| **W4** | Poor source water quality – salinity |
| **W5** | High cost of water/repairs |
| **W6** | Poor domestic water treatment practices |
| **W7** | Lack of access or acceptance of household water treatment (HWT) |
| **W8** | Lack of containers and poor storage practices |
| **W9** | Need for water quality monitoring |
| **W10** | Need for water supply planning |
| **W11** | Research into water |
| **W12** | Other water gaps |

## Hygiene

| | |
|---|---|
| **H1** | Lack of access to hygiene tools, kits, and products |
| **H2** | Need for handwashing stations |
| **H3** | Weak hygiene practices and knowledge |
| **H4** | Lack of MHM knowledge, taboos on MHM, or lack or privacy for MHM |
| **H5** | Lack of MHM materials |
| **H6** | High cost of hygiene |
| **H7** | Research hygiene |
| **H8** | Other hygiene |

## Sanitation

| | |
|---|---|
| **S1** | Need for sanitation access and coverage |
| **S2** | Poor quality sanitation services |
| **S3** | Improper solid waste disposal |
| **S4** | Need for FSM |
| **S5** | Concern with open defecation practices |
| **S6** | Need for sanitation access for those with special needs |
| **S7** | Concerns around sharing/safety of latrines (gender) |
| **S8** | Weak knowledge around sanitation |
| **S9** | Lack of land/materials for latrines |
| **S10** | Need for shower/bathing facilities |
| **S11** | High cost of sanitation |
| **S12** | Research sanitation |
| **S13** | Other sanitation |

## General WASH

| | |
|---|---|
| **A1** | Lack of access to WASH services |
| **A2** | Need for better quality WASH facilities |
| **A3** | Need for WASH operations and maintenance |
| **A4** | Need for WASH for special needs |
| **A5** | Research WASH |
| **A6** | Need for WASH funding |
| **A7** | High cost of WASH materials |
| **A8** | Need for WASH staff capacity/training/expertise |
| **A9** | Right to WASH |
| **A10** | Other WASH |

**Cross-cutting**

| | |
|---|---|
| **P1** | Need for collaboration and coordination (including governance) |
| **P2** | Need for community engagement |
| **P3** | Need for sustainability and ownership |
| **P4** | Need for gender inclusion/prevention GBV |
| **P5** | Need for vector control |
| **P6** | Lack of access – security |
| **P7** | Lack of access – logistics |
| **P8** | Need for data sharing, tools, and documents |
| **P9** | Lack of monitoring and surveillance |
| **P10** | Community disagreements or conflict |
| **P11** | Concerns with climate change |
| **P12** | Concerns with COVID |
| **P13** | Linking with private sector |
| **P14** | Linking with other sectors |
| **P15** | Other Cross-cutting |

After each gap was categorised into theme, major category, and category, data were analysed individually by data source and presented as follows:

1) Gaps by data source and **theme** are graphically presented

2) Gaps by data source and **major category** are graphically presented if they accounted for at least 5% of gaps

3) The 'Top 10' gaps by data source and **category** are presented in tabular form, and any gap with 10 or more mentions (or 20 in the literature review) is presented in a sunburst graphic.

Additionally, a database was created (Annex A) of all gaps, that is searchable using the filter function by specific stratifications. To use the filter functions, click on the cells in row A, and select only the responses you would like to see.

Draft versions of this report were reviewed via email and one online call with the Review Group. As part of the review process, experts were specfically asked the question: What gaps do you think are missing from this report? The goal of asking this question of the group of experts was to identify the 'unknown unknowns' within this work. Comments from the Review Group were incorporated specifically into the Discussion section.

## The facilitators of the FGDs were:

Mohammad Yousuf Mazhar, Kamrul Hasan, Ouedraogo Noufou, Dr. Georges Nguefack-Tsague, Kume Alfred Gimandze, Tanto Matilda Musah, Linjouom Nchoutpouen Abdou Aziz, Adamou Dodo, Valentín Estrada Saldarriaga, Carolina Pardo, Tom Russell, Anatole Bandu, Dabo Boubacar, Alemayehu Godebo, Iva Namela Bakaniceva, Gyvenson Michel, Wangcos Laurore, Anand Prokash Kanoo, Bimal Pandia, Delhi Rose Angom, Florence Elizabeth, Marije Broekhuijsen, Moitrayee Mondal, Nikhil Singh, Sanjana Sen, Bagus Setyawan, Karwan Majeed Muhammed Al Zahawi, Khalid Jasem Al Hatemi, Mahir Ali, Mohammed Barwary, Muhammed Ali, Mogusu Obed, Elisabeth Huba-Mang, Mantopi Martina De Porres Lebofa, Khairy Ali Algharyani, Fassou Noramou, Bezura Mamboza, Edson Semedo Mussa, Emilia Mussa, Jorge Benedito Condoeira, Aye Win, Jeffrey Silverman, Lei Yee Nway, Anjil Adhikari, Biju Dangol, Innocent Onyema Alobu, James Y. Sumo, Shagba Tor Henry, Shintoho Aondover Jacob, Alsafa Ilyas, Arif Nawaz, Irfan Ullah, Khan Kareem, Muhammad Yousif Panhwar, Naveed Jan, Rahim Badshah, Rashid Zaman, Sawai Mal, Rola Eid, Heba Harara, Mahmoud Qaffaf, Roba Al Daour, Sukaina Samhan, Abdelsamad Alqanou, Ola Omar Hellis, Safaa Mahmoud, Samir Alnahhal, Shaimaa Saqer, Errol Merquita, Howard Bryan Bacayana, Mbaye Sall, Abdiaziz Haroon, Kamal Hassan Haji, Francis Paul Galerio, Logworong Alex Duku, Simeneh Gebeyehu, Adam Awad Ahmed, Jamal Badawi, Amer Obaid, Tymaa Dekmak, Temu Kemendi, Sylvia Asiimwe, Caroline Aliga, Ambayo James Okudi, David Alford, Wafa Al Madhagi, Abdulsalam Yahya Mohammed Dajran, Hemiar Ali Al-Harbi, Nedal Abdu Mohammed Shanoon, Shada Najeeb, Taher Abdullah Alyousefi, Charity Tuseko Sindano, Machenje Chilimelime, John Chinyama, Purity Muranganwa, Pierre-Yves Rochat, Juan Luis Lopez Frechilla, John Allen, Lama Abdul Samad, Ali Regah Ahmed, Simon Odong, Adnan Feadh Yousf, Muhammad Shoaib, Lekelem Dongmo Gilles Protais, Marie Nicole Ngoufack, Muhammad Ali Jatoi, Adnan Fayyadh Yousif, Maguette Diop, Mohammad Samer Zidan, Nabil Salh Mohmmed Alharbi, Shawqi Gazi Abdalwahed Alaghabari, Kidane Badeg, Lae Yee Win, Syed Nasir Ali, Shakeela Naz, Abdulkhaleq Alwan, Aditya Jain, Anand Prokash Kanoo, Gautam Patnaik, Ahmed Al Mardas, Syed Fida Hussain Shah, Lama Abdul Samad and Simon Odong

International Medical Corps, Care, Catholic Relief Services (CRS), Challenges Initiative Solutions, SOLIDIS, Oxfam, Unicef, IMMAP, Medair, Helpage DRC, UNHCR, Unicef Pacific, Acted, Plan International Haiti, Solidarites International, World Vision India, Swayam Shikshan Prayog, Kenya Red Cross Society, Technologies for Economic Development (TED), Imc, Associação Anjos Terrestres, Christofel Blinden Mission (CBM) International, Zoa International, GHIV Africa, Goalprime Organization Nigeria, Ehsar Foundation, Secours Islamique France, Peace and Development Organisation (PADO), Ma'an Development Center, Zakher Association for Developing Women Capacities, Mercy Without Limits, Health Nest Uganda, ABS Development for Woman and Child, Human Life Foundation for Development and Relief, World Vision, Human Life Foundation
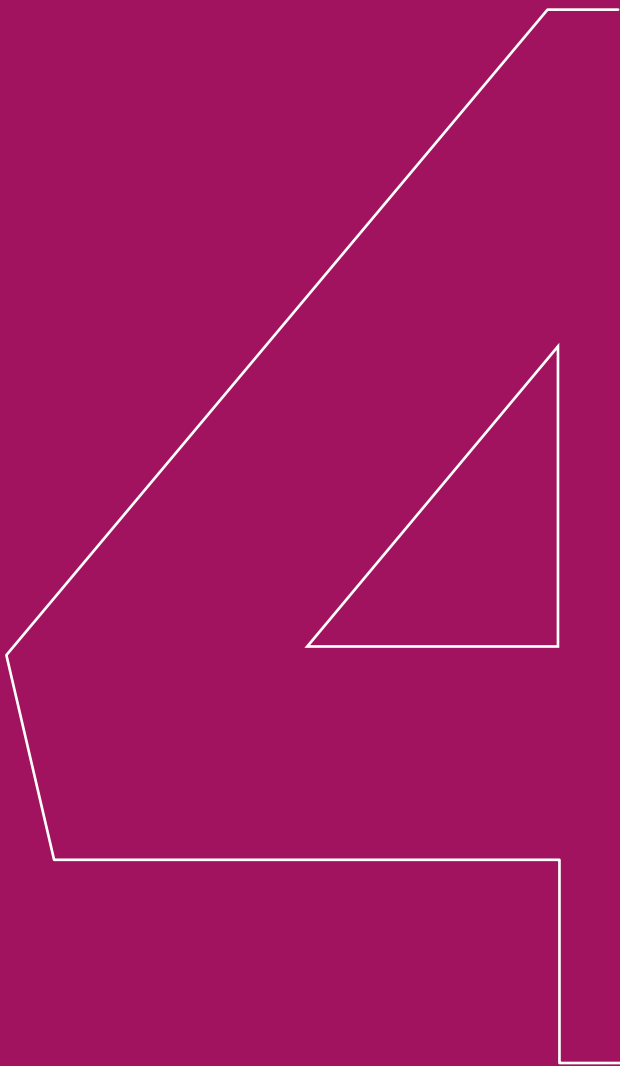
# Results
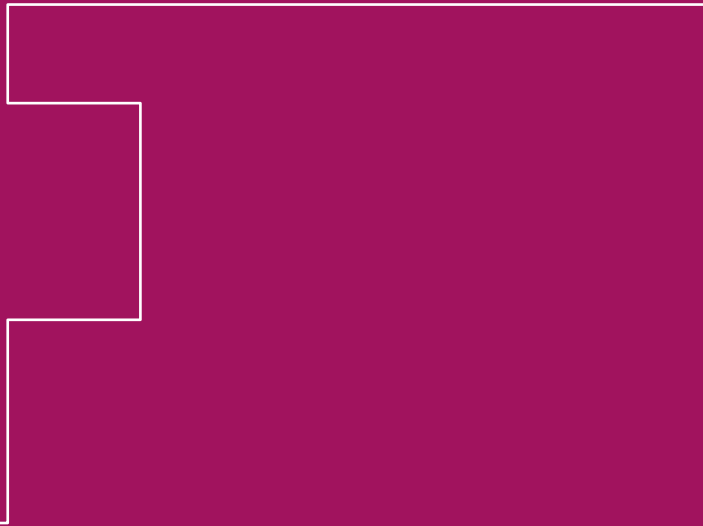
# Results

Results are presented as described in Part 3 of this report ('Research Methods'), beginning with the direct feedback. Direct feedback was obtained from 154 FGDs with people affected by crises, 66 FGDs with WASH practitioners, 246 respondents to the global survey, and three country case studies.

**154**
FOCUS GROUP DISCUSSIONS WITH PEOPLE AFFECTED BY CRISES

**66**
FOCUS GROUP DISCUSSIONS WITH WASH PRACTITIONERS

**246**
RESPONDENTS TO THE GLOBAL SURVEY

**3**
COUNTRY CASE STUDIES

# **4.1** Focus Group Discussions: People affected by crises

## **4.1.1** Discussant demographics

In total, each of the 154 FGDs with people affected by crises highlighted at least one gap. The average group size was 11.3 people, with a minimum group of six and maximum of 21. Overall, 1,738 people affected by crises participated in FGDs, including 933 women, 793 men, and 12 people who preferred not to identify their gender. Of the 933 women, 848 were adults aged 18-60, and 85 were over the age of 60; and, 633 did not report a disability, 279 reported a Level 1 disability or higher according to the Washington Group Short Set of Disability Questions, and 21 preferred not to identify their disability status. Of the 793 men, 669 were adults aged 18-60 and 124 were over age 60; and, 569 did not report a disability, 224 reported a Level 1 disability or higher, and none preferred not to identify disability status. Of the 12 participants who preferred not to identify their gender, all were adults aged 18-60; four reported a Level 1 disability and eight preferred not to list their disability status.

Of the 154 focus groups, 54 were mixed gender, 58 were women-only, and 42 were men-only. Additionally, 82 were mixed persons with some who reported a Level 1 disability or higher and some who did not, 56 were only persons without disabilities,

15 were only persons who reported a Level 1 disability or higher, and one group preferred not to identify disability status.

Discussants came from 30 different countries, with Democratic Republic of the Congo (DRC) (22 groups, 14%), Somalia (19, 12%), Tanzania (12, 8%), Nigeria (9, 6%), Yemen (9, 6%), and Palestine (8, 5%) each accounting for more than 5% of total groups, and the six countries together accounting for 51% of total groups. By World Health Organization (WHO) region, 84 (55%) of groups came from the African Region, 50 (32%) from the Eastern Mediterranean region, seven (5%) from Region of the Americas, seven (5%) from the Southeast Asian Region, and six from the Western Pacific Region (4%).

The most frequent duration of emergency in the FGD area was >5 years (77 groups, 50%), followed by six months to five years (58 groups, 38%), and then <6 months (19 groups, 12%). Overall, 103 focus groups (67%) were in conflict emergencies, 39 (25%) in natural hazard-driven disasters, and 22 (14%) in outbreaks. Focus groups were a mix of internally displaced, refugee, and not-displaced statuses; camp/settlements and not; and urban/rural.

Overall, focus group discussants were primarily women without disabilities in conflict-based humanitarian contexts with emergency duration >5 years in the African and Eastern Mediterranean Regions.

## **4.1.2** Gaps by theme, major category, and category

The 154 focus groups listed a total of 957 individual gaps, averaging 6.2 gaps per group, with a minimum of one and a maximum of 19. These gaps were categorised into theme, major category, and category. As 50 gaps were double gaps and categorised into two sets of themes, major category, and category, 1,007 total gaps were categorised.

In total, 35% (352) of gaps were categorised in the water and sanitation themes, 21% (208) were hygiene, 6% (60) were cross-cutting, and 3% (35) were WASH gaps (Figure 11). Statistical differences between genders were not seen in focus groups with persons affected by crises. Conversely, focus groups of people affected by crises that included persons with disabilities were more likely to report cross-cutting, general WASH, and water gaps, while groups without persons with disabilities were more likely to report hygiene and sanitation gaps ($p<0.05$).

### **Figure 2:**

Gaps from FGDs of people affected by crises, by theme



**6%** Cross-cutting

**3%** General WASH

**21%** Hygiene
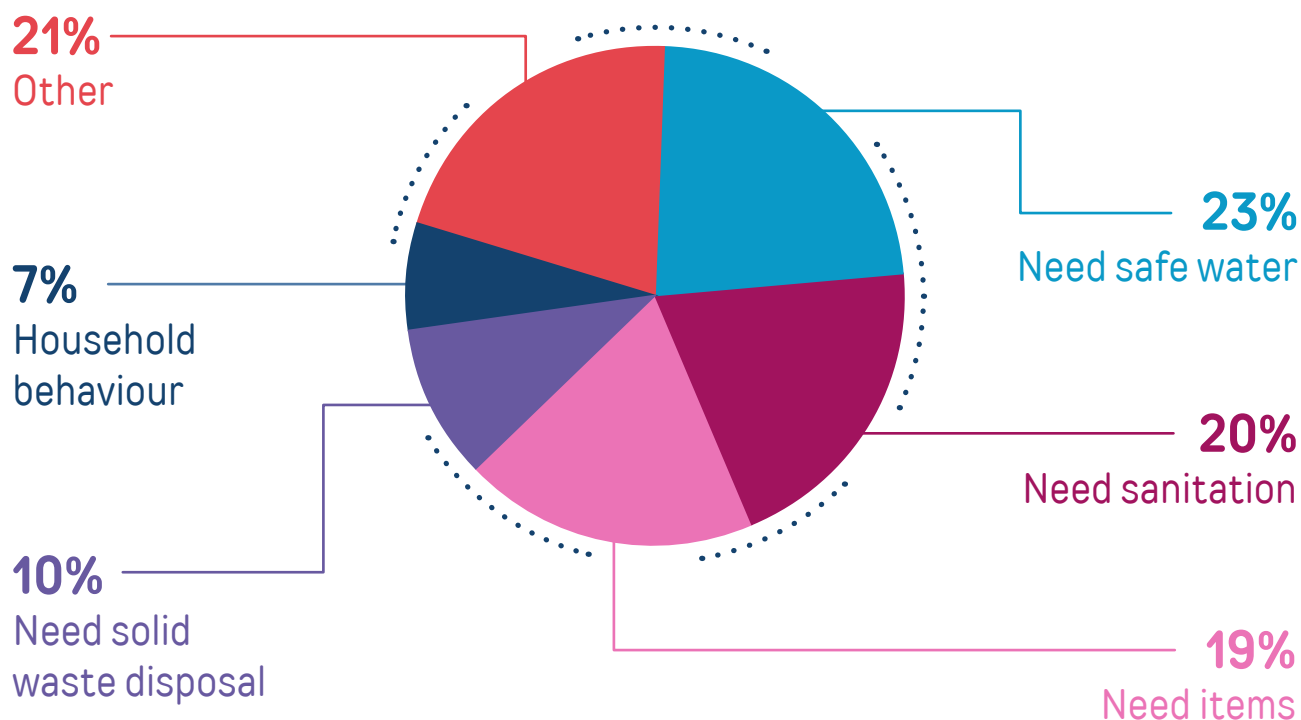
**35%** Water
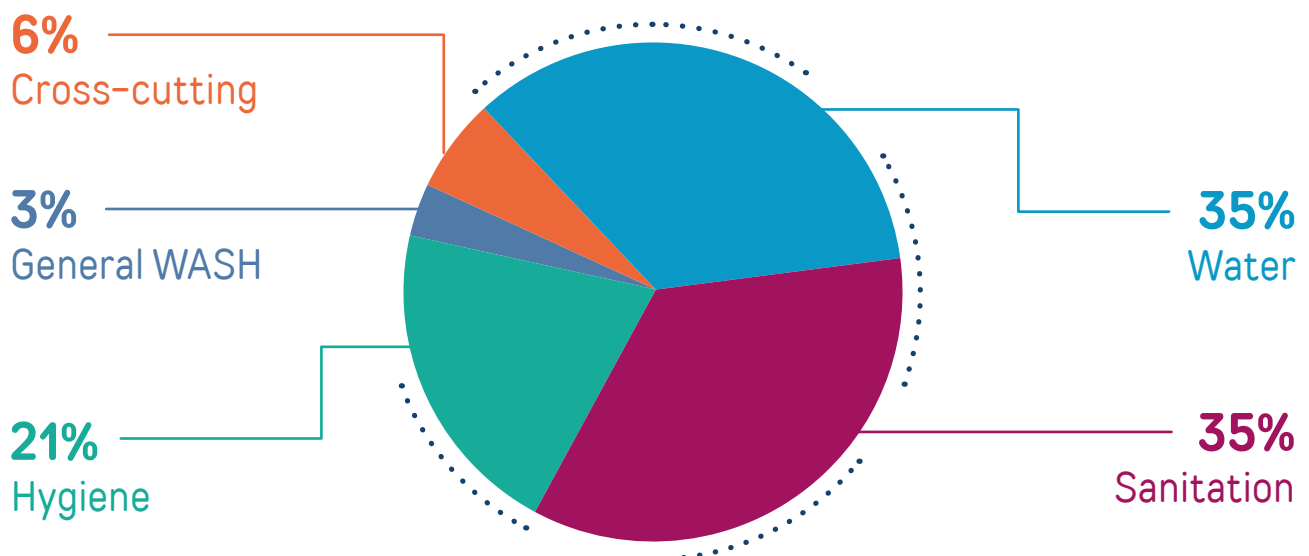
**35%** Sanitation

When classified into 19 major grouped categories, five categories accounted for more than 75% of total gaps (Figure 3). These included the need for: safe water (23%), sanitation (20%), items (19%), solid waste disposal (10%), and household behaviour (7%). The remaining categories all had <5% of gaps, including need for collaboration with other sectors, need planning, cost too high, need FSM, need WASH, need collaboration, concerns with gender, barriers to implementation, need good staffing, need monitoring, need funding, and need coordination (with partners/government). Please note, household behaviour is inclusive of the categories related to need for education on household practices: poor domestic water treatment practices, lack of access/ acceptance of HWT, weak knowledge around sanitation, weak hygiene practices or knowledge, lack of MHM knowledge, taboos on MHM, or lack of privacy for MHM. Please note also that need research and right to water were not mentioned by people affected by crises.

## Figure 3:

### Gaps from FGDs of people affected by crises, by major category



**21%** Other

**7%** Household behaviour

**10%** Need solid waste disposal

**23%** Need safe water

**20%** Need sanitation

**19%** Need items

When the 1,007 gaps were classified by theme into 58 categories, 21 categories had 10 or more mentions and accounted for 91% of gaps (Figure 4). The Top 10 most mentioned categories accounted for 71% of total gaps and are listed in **Table 1** below.

## Table 1:

Most-mentioned gaps from FGDs of people affected by crises, by category

| | Theme | Category | Number | % |
|---|---|---|---|---|
| 1 | Water | Need for water supply and provision | 137 | 14% |
| 2 | Sanitation | Need for sanitation access and coverage | 102 | 10% |
| 3 | Sanitation | Improper solid waste disposal | 99 | 10% |
| 4 | Hygiene | Lack of access to hygiene tools, kits, and products | 97 | 10% |
| 5 | Water | Need to repair/improve current water supply | 58 | 6% |
| 6 | Water | Lack of containers and poor storage practices | 52 | 5% |
| 7 | Sanitation | Poor quality sanitation services | 50 | 5% |
| 8 | Hygiene | Weak hygiene practices and knowledge | 47 | 5% |
| 9 | Hygiene | Lack of MHM materials | 38 | 4% |
| 10 | Water | Need for water supply planning (environment/flooding/WRM/WSP) | 32 | 3% |

40

# Figure 4:

## Gaps with ≥10 mentions in FGDs with people affected by crises, by theme and category
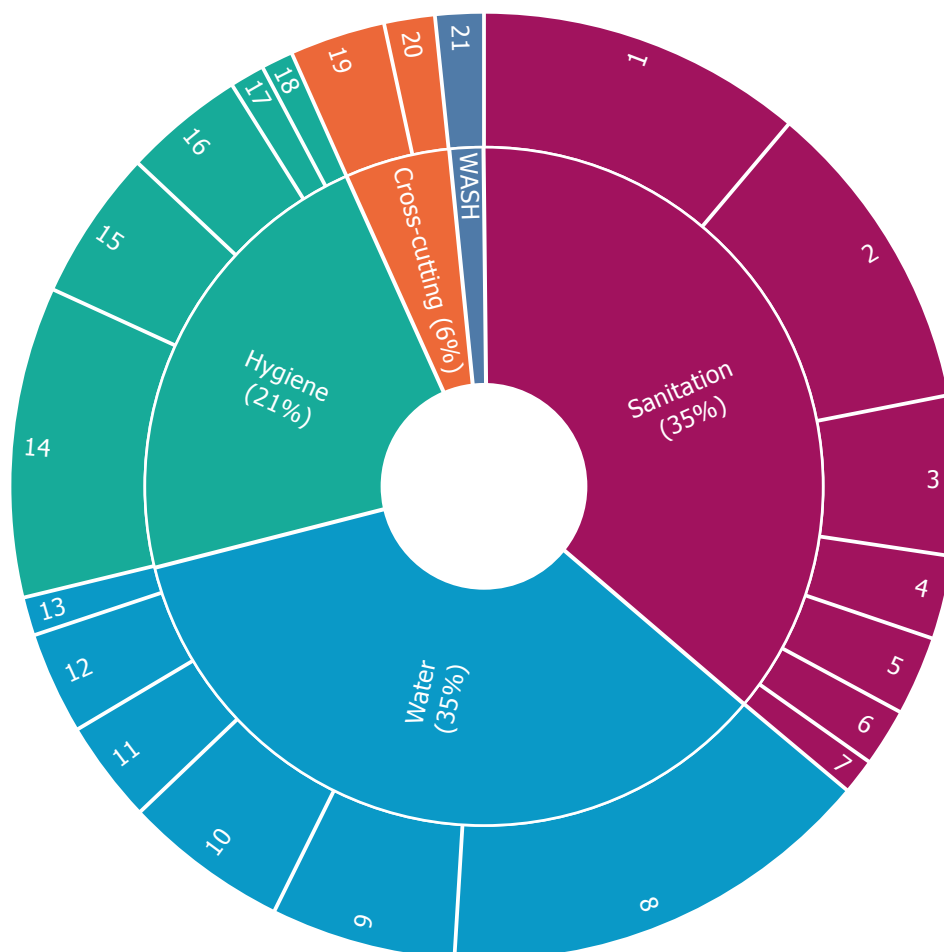


**Sanitation** (35%)
1 Need for sanitation access and coverage: 10.1%
2 Improper solid waste disposal: 9.8%
3 Poor quality sanitation services: 5%
4 Need for sanitation access for those with special needs: 2.6%
5 Need for FSM: 2.5%
6 Concerns around sharing/safety of latrines (gender): 1.8%
7 Need for shower/bathing facilities: 1.1%

**Water** (35%)
8 Need for water supply and provision: 13.6%
9 Need to repair/improve current water supply: 5.8%
10 Lack of containers and poor storage practices: 5.2%
11 Poor source water quality: 3.2%
12 Need for water supply planning (Environment/Flooding/WRM/WSP): 3.2%
13 High cost of water/repairs: 1.2%

**Hygiene** (21%)
14 Lack of access to hygiene tools, kits and products: 9.6%
15 Weak hygiene practices and knowledge: 4.7%
16 Lack of MHM materials: 3.8%
17 Lack of MHM knowledge, taboos on MHM or lack of privacy for MHM: 1.1%
18 High cost of hygiene: 1.0%

**Cross-cutting** (6%)
19 Need for vector control: 3.0%
20 Need for community engagement: 1.6%

**General WASH** (3%)
21 Need for WASH for special needs: 1.5%

# **4.2** Focus Group Discussions: WASH Practitioners

## **4.2.1** Discussant demographics

In total, 66 FGDs with WASH practitioners listed at least one gap. The average group size was 10.5 people, with a minimum group of four and maximum of 17. Overall, 682 WASH practitioners participated in FGDs, including 233 women, 443 men, and eight who preferred not to identify their gender. Of the 233 women, 216 were adults age 18-60 and 15 were over age 60; and, 176 did not have a disability, 47 had a disability, and eight preferred not to identify their disability status. Of the 443 men, 420 were adults aged 18-60 and 23 were over age 60; and, 368 did not have a disability, 71 had a disability, and four preferred not to identify their disability status. Of the eight who preferred not to identify gender, all were adults without disabilities.

Of the 66 focus groups, 39 were mixed gender, eight were women-only, 18 were men-only, and one preferred not to identify. Additionally, 29 were mixed persons with disabilities and not, 33 were only persons without disabilities, three were only persons with disabilities, and one preferred not to identify.

Discussants came from 24 different countries, with DRC (12 groups, 18%), Pakistan (10, 15%), India (six, 9%), Nepal (five, 8%), Palestine (five, 8%), and Yemen (four, 6%), accounting for more than 5% of total groups, and accounting for 65% of total groups. By WHO region, 28 (42%) groups came from the African Region, 22 (33%) from the Eastern Mediterranean Region, 13 (20%) from the Southeast Asian Region, and three from the Region of the Americas (5%).

The most frequent duration of emergency in the FGD area was >5 years (36 groups, 55%), followed by six months to five years (26 groups, 39%), and <6 months (four groups, 6%). Overall, 35 focus groups (53%) were in conflict emergencies, 23 (35%) in natural hazard-driven disasters, and 37 (56%) in outbreaks. Focus groups were conducted in primarily non-camp/settlement settings (37, 56%); in a mix of urban and rural areas; and with people of mixed, displaced, refugee, and not-displaced statuses.

Overall, focus group discussants were primarily men without disabilities in conflict and outbreak humanitarian contexts with emergency duration >5 years in non camp/ settlement areas in the African and Eastern Mediterranean Regions.

## **4.2.2** Gaps by theme, major category, and category

The 66 focus groups listed a total of 694 individual gaps, with an average 10.5 gaps per group, with a minimum of two and a maximum of 35. As 56 individually listed gaps contained two gaps, these were categorised into two sets of themes, major category, and category; 750 total gaps were categorised.

In total, 32% (238) of gaps were categorised in the water theme, 26% (192) were in sanitation, 17% (131) cross-cutting, 16% (123) hygiene, and 9% (66) in WASH (Figure 5). Focus groups of WASH practitioners that included women discussants were more likely to report hygiene, general WASH, and cross-cutting gaps, while mixed or male-only focus groups were more likely to report water and sanitation gaps (p<0.001). Statistical differences between disability status were not seen in focus groups with WASH practitioners.

### **Figure 5:**

Gaps from FGDs of WASH practitioners, by theme



**17%**
Cross-cutting

**9%**
General WASH

**16%**
Hygiene

**32%**
Water

**26%**
Sanitation
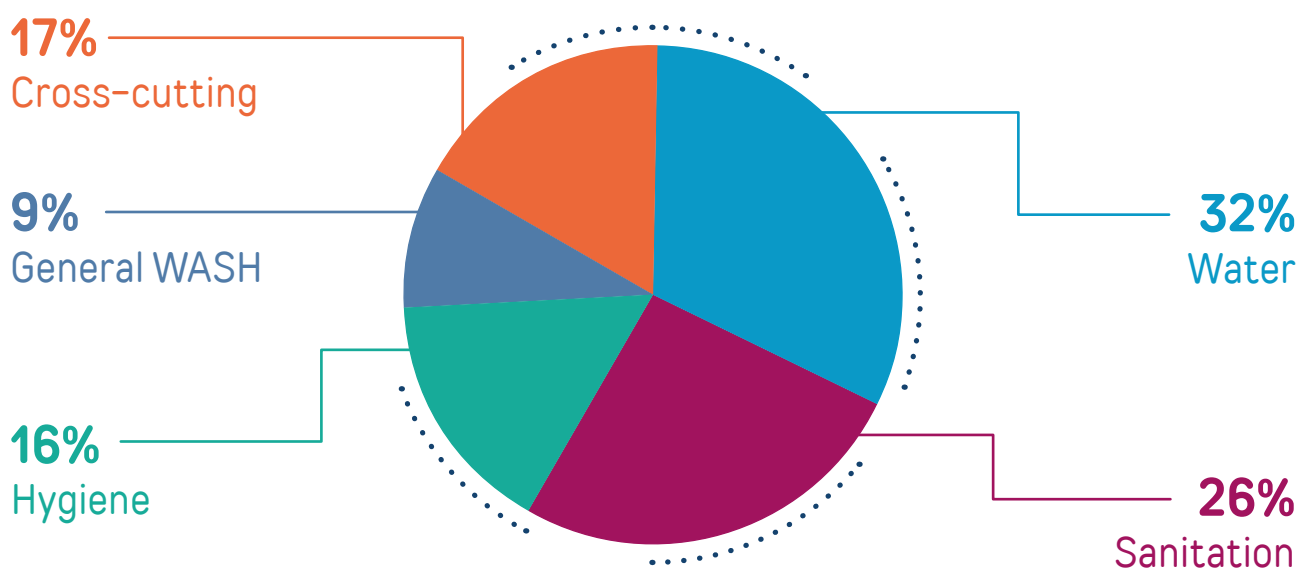
When classified into 19 major grouped categories, six categories accounted for more than 65% of total gaps (Figure 6). This included: need safe water (20%), household behaviour (12%), need sanitation (11%), need items (8%), need collaboration (8%), and need solid waste disposal (8%). The remaining 13 categories all had <5% of gaps, including need WASH, need FSM, need coordination (with partners/government), need planning, need monitoring, need for collaboration with other sectors, barriers to implementation, cost too high, need good staffing, concerns with gender, need funding, need research, and right to water.

## Figure 6:

### Gaps from FGDs of WASH practitioners, by major category



**33%** Other

**20%** Need safe water

**12%** Household behaviour

**11%** Need sanitation

**8%** Need items

**8%** Need collaboration

**8%** Need solid waste disposal
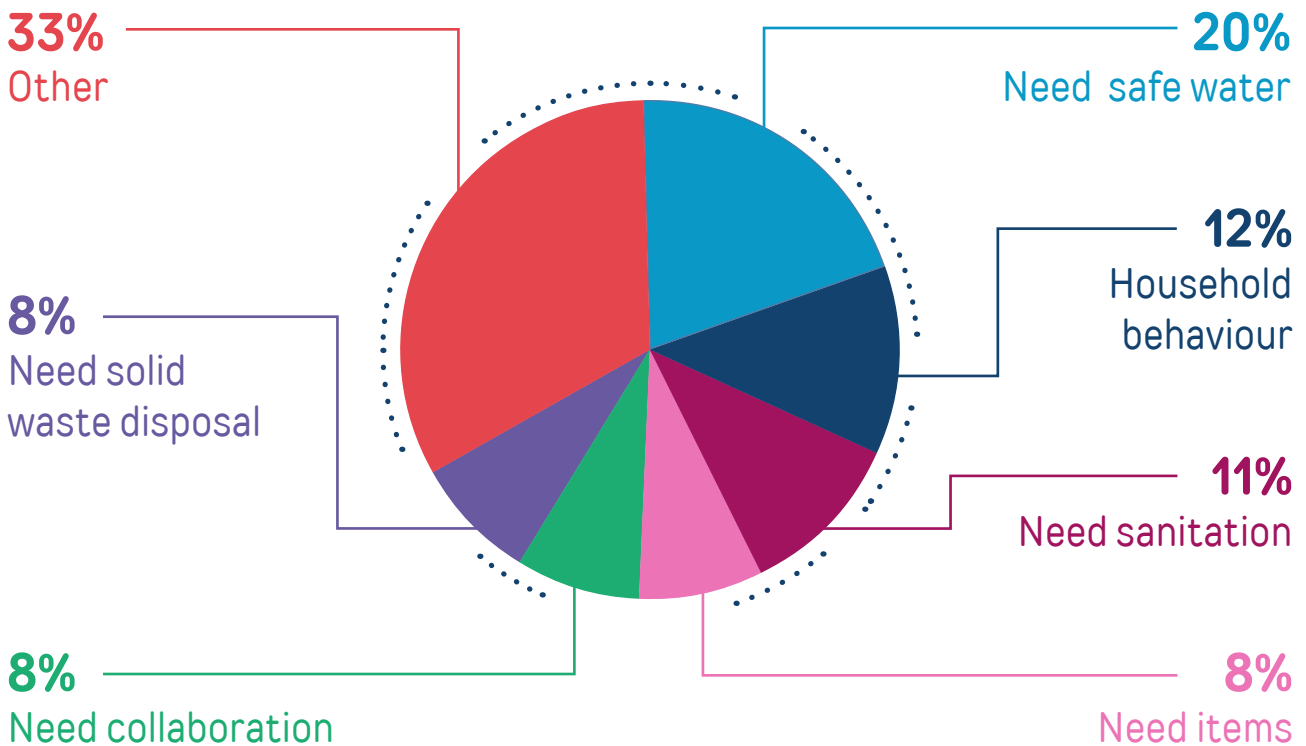
When the 750 gaps were classified by theme into 58 categories, 22 categories had 10 or more mentions and accounted for 83% of gaps (Figure 7). The Top 10 most mentioned categories accounted for 57% of total gaps and are listed in **Table 2** below.

## Table 2:

Most-mentioned gaps from FGDs of WASH practitioners, by category

| | Theme | Category | Number | % |
|---|---|---|---|---|
| 1 | Water | Need for water supply and provision | 65 | 9% |
| 2 | Sanitation | Improper solid waste disposal | 55 | 7% |
| 3 | Hygiene | Weak hygiene practices and knowledge | 54 | 7% |
| 4 | Water | Need to repair/improve current water supply | 51 | 7% |
| 5 | Sanitation | Need for sanitation access and coverage | 44 | 6% |
| 6 | Sanitation | Need for FSM | 33 | 4% |
| 7 | Water | Poor source water quality | 33 | 4% |
| 8 | Cross-cutting | Need for collaboration and coordination (including governance) | 32 | 4% |
| 9 | Sanitation | Need for water supply planning (Environment/Flooding/WRM/WSP) | 29 | 4% |
| 10 | Cross-cutting | Poor quality sanitation services | 28 | 4% |

## Figure 7:

### Gaps with ≥ 10 mentions in FGDs with WASH practitioners, by theme and category
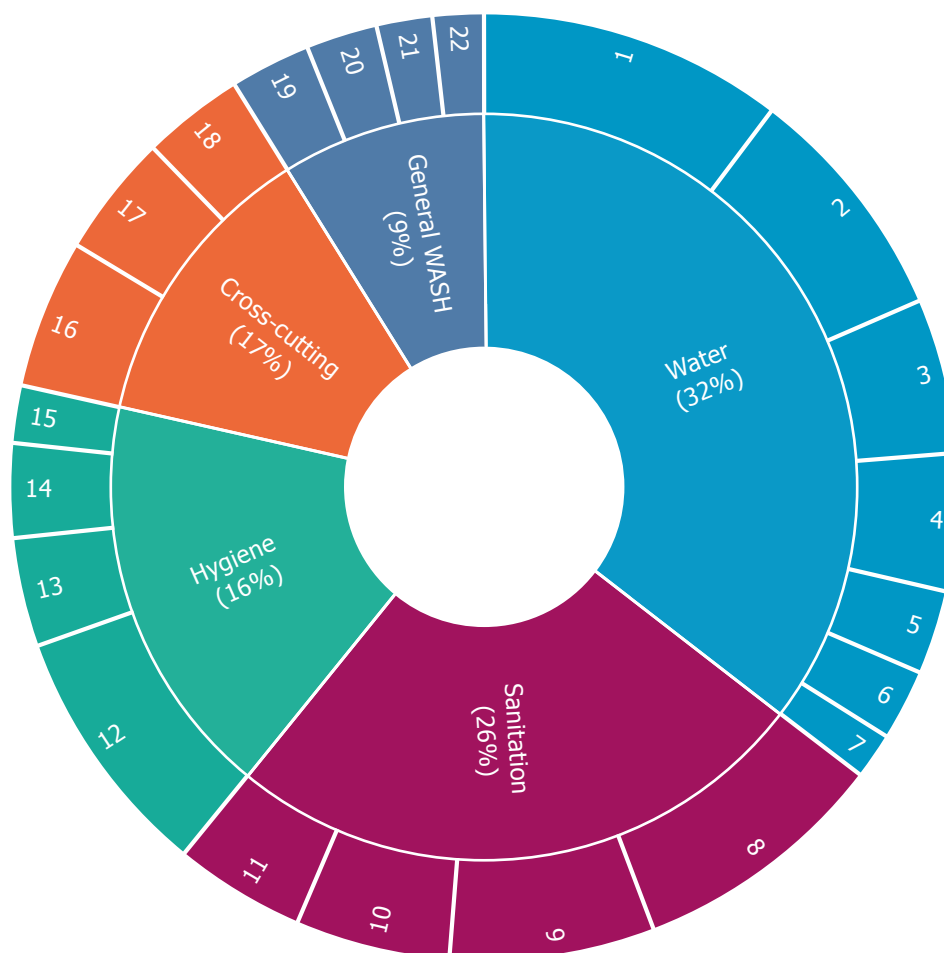


**Water** (32%)

1  Need for water supply and provision: 8.7%
2  Need to repair/improve current water supply: 6.8%
3  Poor source water quality: 4.4%
4  Need for water supply planning (Environment/ Flooding/WRM/WSP): 3.9%
5  Lack of containers and poor storage practices: 2.4%
6  Need for water quality monitoring: 2.0%
7  Lack of access or acceptance of HWT: 1.3%

**Sanitation** (26%)

8  Improper solid waste disposal: 7.3%
9  Need for sanitation access and coverage: 5.9%
10  Need for FSM: 4.4%
11  Poor quality sanitation services: 3.7%

**Hygiene** (16%)

12  Weak hygiene practices and knowledge: 7.2%

13  Lack of access to hygiene tools, kits and products: 3.1%
14  Lack of MHM knowledge, taboos on MHM, or lack of privacy for MHM: 2.7%
15  Lack of MHM materials: 1.6%

**Cross-cutting** (17%)

16  Need for collaboration and coordination (including governance): 4.3%
17  Need for community engagement: 3.5%
18  Need for sustainability and ownership: 2.9%

**General WASH** (9%)

19  Need for WASH operations and maintenance: 2.3%
20  Need for WASH staff capacity/training/ expertise: 2.0%
21  Lack of access to WASH services: 1.6%
22  Need for WASH funding: 1.5%

# **4.3** Global Survey

## **4.3.1** Respondent demographics

In total, 246 respondents entered at least one gap on the global survey, including 178 men (72%), 66 women (27%), and two who preferred not to identify their gender (1%). Respondents included 24 people aged 18-29 (10%), 167 (68%) aged 30-49, and 55 (22%) aged 50 years or older.

The majority of respondents reported working in 'humanitarian WASH' (132, 54%), with 42 (17%) reporting working in 'other humanitarian sectors', 32 (13%) working in 'development WASH', and 15 (6%) working as consultants. Few respondents reported working in academia (five, 2%), government (four, 2%), donor organisations (three, 1%), private sector (three, 1%), being a person affected by crisis (three, 1%), or other (seven, (3%). Respondents reported working for international non-governmental organisations (NGOs) (124, 51%), followed by the United Nations (44, 18%), local/national NGOs (32, 13%), and government (12, 5%). Remaining respondents reported working for Red Cross (eight, 3%),

research/learning institute (seven, 3%), foundations (five, 2%), consultancies (two, 1%), and other (nine, 4%). Fifteen respondents had worked <1 year (6%), 71 (29%) one to five years, 61 (25%) six to 10 years, and 93 (38%) 11+ years. The majority of respondents worked at the country level (53%, 130), followed by the global level (19%, 46), regional level (14%, 34), and sub-national level (13%, 32).

Respondents came from 64 different countries, with global/multiple (36, 15%), Pakistan (15, 6%), Uganda (13, 5%), DRC (12, 5%), Bangladesh (11, 5%), and Palestine (11, 5%) having more than 10 respondents and accounting for 41% of total respondents. By WHO region, 83 (34%) respondents came from the African Region, 54 (22%) from the Eastern Mediterranean Region, 36 (15%) from global/multiple, 26 (11%) from the Southeast Asian Regions, 19 (8%) from Region of the Americas, 16 (7%) from the European Region, and nine from the Western Pacific Region (4%).

Overall, survey respondents were primarily mid-career men working in the humanitarian WASH sector at the country level for international NGOs or the United Nations in multiple countries or large-scale humanitarian crises.

## **4.3.2** Gaps by theme, major category, and category

The 246 respondents listed a total of 1,146 individual gaps, with an average 4.3 gaps per respondent, with a minimum of one and a maximum of 15. These gaps were categorised into theme, major category, and category. As 23 gaps were double gaps and categorised into two sets of themes, major category, and category, and, 38 gaps were not able to be categorised because they were 'unclear', 1,131 total gaps were categorised.

In total, 39% (447) of gaps were categorised in the cross-cutting theme, 23% (263) were general WASH, 17% (187) were sanitation, 14% (156) were water, and 7% (78) were hygiene gaps (Figure 8). Women were more likely to report hygiene and sanitation gaps, while men were more likely to report cross-cutting and general WASH gaps (p=0.001). Additionally, global respondents were more likely to report cross-cutting gaps, and sub-national respondents were more likely to report hygiene and sanitation gaps (p=0.001).

### Figure 8:

Gaps from Global Survey, by theme



**39%**
Cross-cutting

**23%**
General WASH

**14%**
Water

**17%**
Sanitation

**7%**
Hygiene
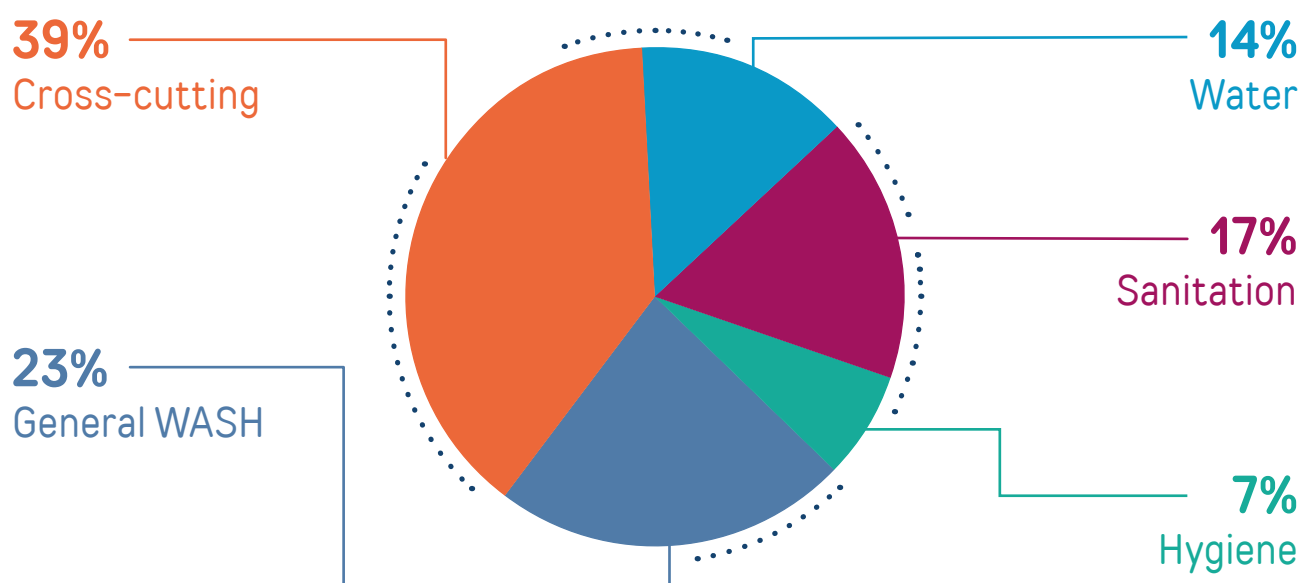
When classified into 19 major grouped categories, nine categories accounted for more than 75% of total gaps (Figure 9). These included the need for: collaboration (18%), safe water (9%), coordination (9%), qualified staffing (9%), sanitation (7%), collaboration with other sectors (7%), funding (6%), WASH in general (6%), and solid waste disposal (5%). The remaining categories all had <5% of gaps, including need for items, concerns with household behaviour, gender, need FSM, need monitoring, barriers to implementation, need planning, need research, cost too high, and right to water.

## Figure 9:

### Gaps from Global Survey, by major category



**24%** Other

**5%** Need solid waste disposal

**6%** Need WASH

**6%** Need funding

**7%** Need collaboration with other sectors

**18%** Need collaboration

**9%** Need safe water

**9%** Need coordination

**9%** Need staffing

**7%** Need sanitation
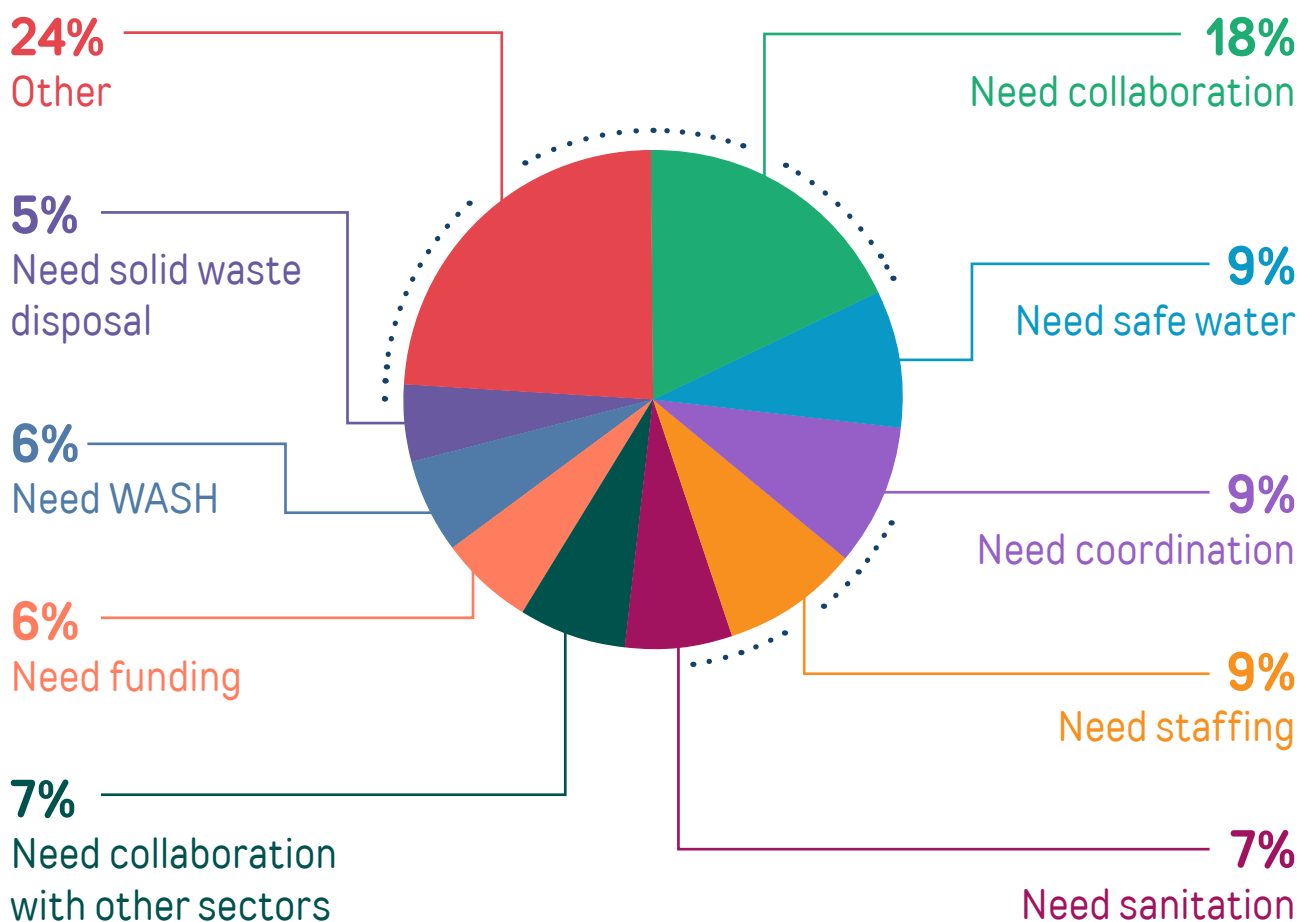
When the 1,131 gaps were classified by theme into 58 categories, 30 categories had 10 or more mentions and accounted for 93% of gaps (Figure 10). The Top 10 most mentioned categories accounted for 61% of total gaps and are listed in **Table 3** below.

## Table 3:

Most-mentioned gaps from Global Survey, by category

| | | Theme | Category | Number | % |
|---|---|---|---|---|---|
| 1 | | Cross-cutting | Need for collaboration and coordination (including governance) | 103 | 9% |
| 2 | | General WASH | Need for WASH staff capacity/training/expertise | 98 | 9% |
| 3 | | Cross-cutting | Need for community engagement | 89 | 8% |
| 4 | | Water | Need for water supply and provision | 81 | 7% |
| 5 | | Cross-cutting | Need for sustainability and ownership | 78 | 7% |
| 6 | | General WASH | Need for WASH funding | 70 | 6% |
| 7 | | Sanitation | Improper solid waste disposal | 61 | 5% |
| 8 | | Sanitation | Need for sanitation access and coverage | 40 | 4% |
| 9 | | Cross-cutting | Need to link with other sectors | 35 | 3% |
| 10 | | Cross-cutting | Need for data sharing, tools, and documents | 32 | 3% |

## Figure 10:

### Gaps with ≥ 10 mentions in Global Survey, by theme and category
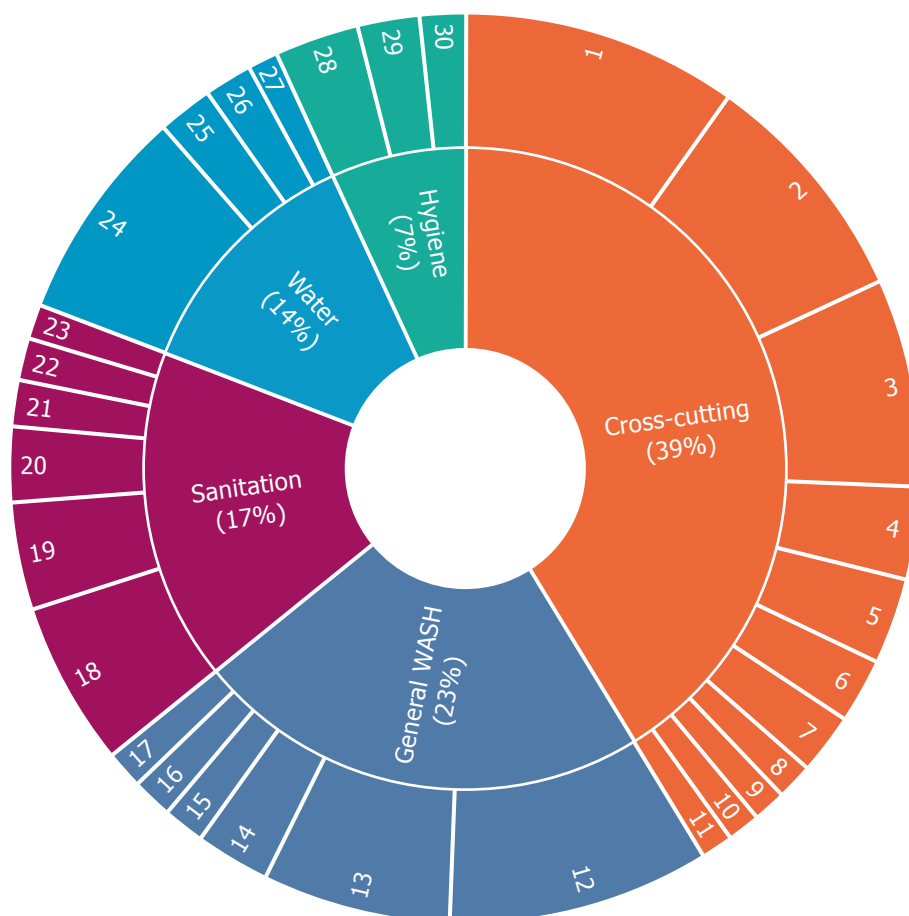


**Cross-cutting** (39%)

**1** Need for collaboration and coordination (including governance): 9.1%

**2** Need for community engagement: 7.9%

**3** Need for sustainability and ownership: 6.9%

**4** Linking with other sectors: 3.1%

**5** Need for data sharing, tools, and documents: 2.8%

**6** Lack of monitoring and surveillance: 2.1%

**7** Need for gender inclusion/prevention GBV: 2.0%

**8** Lack of access - security: 1.1%

**9** Need for vector control: 1.1%

**10** Linking with private sector: 1.1%

**11** Lack of access - logistics: 1.1%

**General WASH** (23%)

**12** Need for WASH staff capacity/training/expertise: 8.7%

**13** Need for WASH funding: 6.2%

**14** Lack of access to WASH services: 2.5%

**15** Research WASH: 1.4%

**16** Need for WASH operations and maintenance: 1.3%

**17** Need for WASH for special needs: 1.2%

**Sanitation** (17%)

**18** Improper solid waste disposal: 5.4%

**19** Need for sanitation access and coverage: 3.5%

**20** Need for FSM: 2.5%

**21** Poor quality sanitation services: 1.5%

**22** Need for sanitation access for those with special needs: 1.4%

**23** Concerns around sharing/safety of latrines (gender): 1.1%

**Water** (14%)

**24** Need for water supply and provision: 7.2%

**25** Need for water supply planning (Environment/Flooding/WRM/WSP): 1.9%

**26** Need to repair/improve current water supply: 1.6%

**27** Lack of access or acceptance of HWT: 1.0%

**Hygiene** (7%)

**28** Weak hygiene practices and knowledge: 2.8%

**29** Lack of access to hygiene tools, kits and products: 2.0%

**30** Lack of MHM materials: 1.5%

# Case Studies

# **4.4** Case Studies

To support the main quantitative dataset from the four data sources and help unpack some of the key gaps, three qualitative cases studies were completed:

Detailed results are shown on the following pages. The results that emerged from the case studies echo the detailed categories of the gaps, in the need for collaboration with government, community engagement, community knowledge, management of resources, need to link with other sectors, barriers to implementation, and lack of resources to complete activities. The case studies shine a light on these category gaps that emerged within specific contexts and implementation.

**1.** Yemen: water supply

**2.** Ethiopia: sanitation

**3.** Somalia: menstrual hygiene management
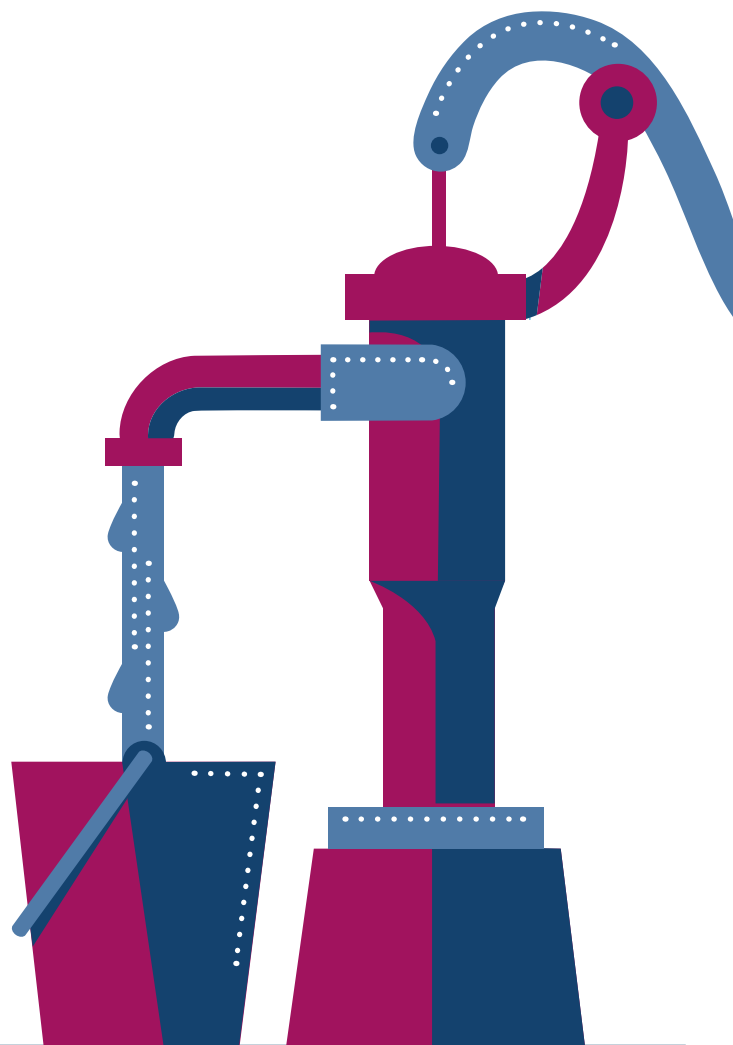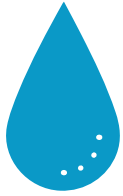
# Water

**Country:** Yemen

FGD with WASH Practitioners, Leads, Coordinators, Water Governance, and People affected by crises

**Question:** Why do people report access to water as the most significant gap in the country?

## Need for water supply and provision

- There is a high demand for water, due to population growth.

- Conflict causes internally displaced persons (IDPs) to continue to move, leaving emergency constructed water supply points and creating further pressure on host communities' resources.

- In areas that rely on rain water, seasonal availability and the potential for contamination are challenges.

- Overextraction due to illegal drilling and irrigation practices has led to depletion and rapid drawdown of groundwater resources.

- Water from public water networks is contaminated and supply is intermittent.

- Household water filters such as pot silver filters are important.

- Water harvesting systems with treatment are needed.
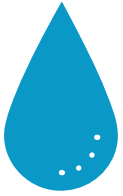
# Lack of water supply management

- There is poor planning, design, and usage of water infrastructures and water resources. Deep and shallow wells are vulnerable to floods in urban areas, which can affect recharge and quality.

- There is a lack of technical and administratively skilled workers.

- Lack of transparency and financial and administrative corruption has caused a lack of trust, leading users not to pay for water.

- A lack of public electricity and high fuel costs limit the operation of generator-powered pumps.

- The water systems in Yemen are very old. Because of that, breakages and leaks in pipelines and the sewage extensions draw in sewage, due to poor maintenance and overuse.

- Water committees have poor capacity to operate, maintain, and manage water sources. There is a lack of support from water supply local corporations and water utilities.

- The cost of the water system construction, operation (fuel), and water costs is high. Poverty makes it difficult to recover the costs of service provision.

- There is lack of operations and maintenance, due to financial/administrative corruption of water authorities.
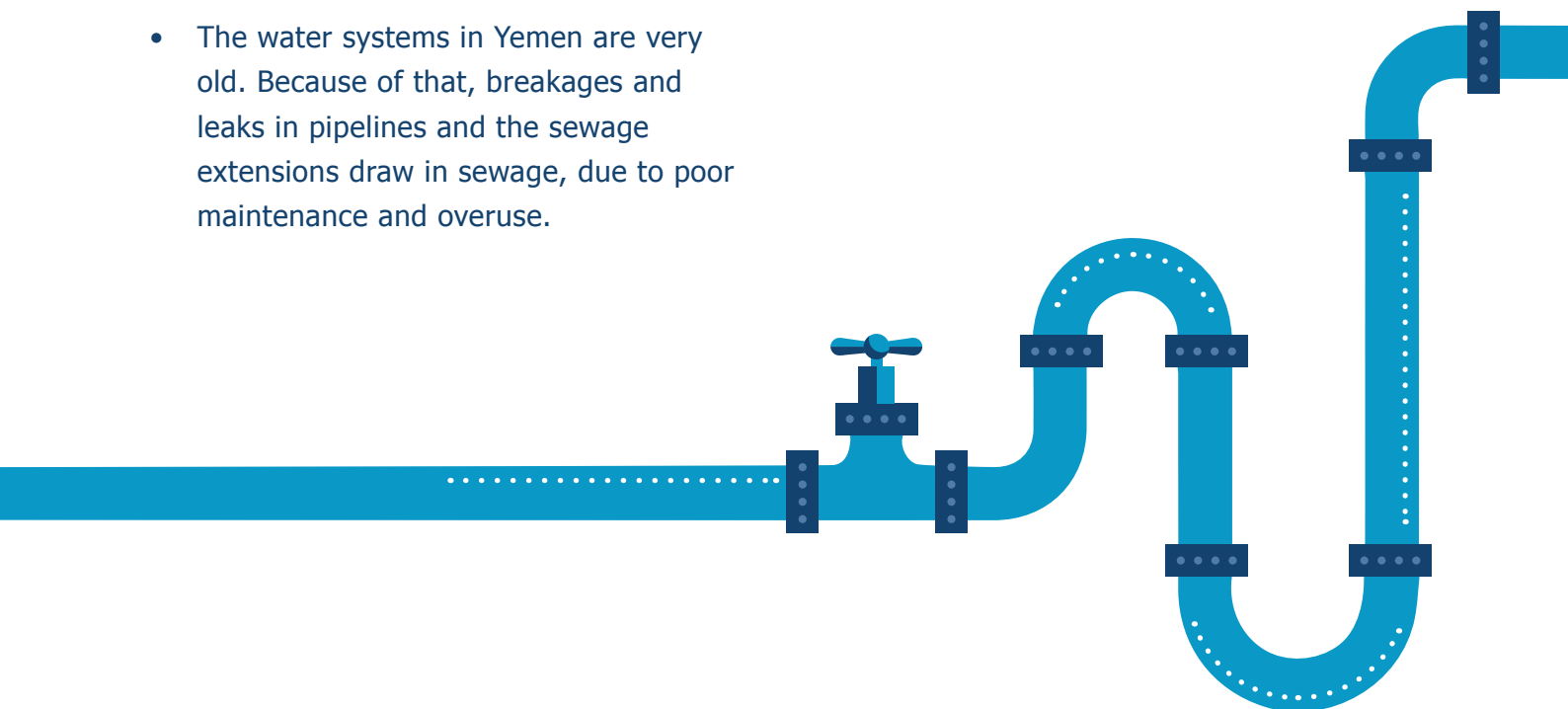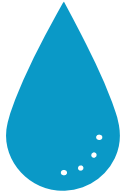
## Contaminated water sources and salinity

- There are high levels of feacal coliform in open and unprotected sources, such as shallow wells. In the western plain, there are high salinity levels due to overpumping groundwater.

## Lack of containers, and poor storage practices

- Water containers (jerrycans) distributed as part of hygiene kits (20-40 litres per household) are insufficient, which often leads to contamination during storage.

## Sustainability

- To ensure communities feel ownership, there is a need for community involvement (especially of women) in the project planning, design, water scheme rehabilitation, and selection of committees.

- There is a need for capacity-building and training water management committees in the operations, maintenance, financial management, and collaboration between consumers and authorities.

## Policy and Government involvement

- There is a lack of political will, involvement, and full support from the government during the crisis, which leads to local authorities lacking operation funds and being unable to pay their employees.

- There is a need to review Water Law and the structure of the Ministry of Water and institutions to support community solutions. For example, in some areas, drilling boreholes is not permitted.

## Funding

- There is a funding gap for WASH activities, especially in the north, as fees are not collected. The capacity of water sector institutions to plan, build, operate, and maintain infrastructure remains limited.

# Sanitation

Country: Ethiopia

FGD with WASH practitioners

Question: What are the factors behind the gap in access to household toilets among displaced populations?

## Rank of people affected by crises based on vulnerability

- Respondents felt people with disabilities, special needs, and the elderly were most at risk.

- This was followed by girls and women, children, and then men and boys.

## Lack and/or poor quality of latrine

- "In Gambella, operation is still 19 people per latrine while it ought to be five people per latrine."

- "In Nguenyiel camp, 49.6% of the household still use bush or open areas, 19.4% uses shared household bathing shelter, and 15.5% uses individual household bathing shelters."

- Many latrines have no lighting inside and/or have broken doors, which leads to no privacy and people feel less dignified using them.

- Latrines fill up too quickly, due to the high number of users. This leads to sewage overflowing, which causes disease outbreaks and contamination in the environment (including of water sources).

- Lack of latrines increases open defecation practices. It is very common for girls, women, and children to experience gender-based violence because of practising open defecation.

- There is destruction of sanitation facilities by termite attack, heavy storm, high groundwater table, collapsing of latrine pit due to lose soil formation, high water table, and flooding.

# "In Gambella, operation is still 19 people per latrine while it ought to be five people per latrine."

## Vandalisation of sanitation facilities

- There is a lack of security and protection to stop latrine vandalisation. For example, people regularly steal the iron sheeting and other roofing materials from latrines.

## Sustainability

- There is lack of ownership of the facilities, due to poor community participation.

- Poor coordination among WASH implementing partners leads to poor joint monitoring and evaluation of the latrine construction activities.

## Poor practices and behaviour, cultural considerations

- Dumping waste and sanitary pads into latrine pits causes latrines to fill up too quickly.

- As men don't want to use latrines that are used by women, there is a need for segregated latrines.

- Poor latrine cleanness causes smells, which discourages latrine use.

## Funding

- There is a lack of advocacy to mobilise more funding to increase latrine coverage and achieve the necessary standards.
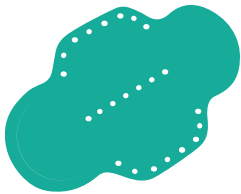
# Menstrual Hygiene

**Country:** Somalia

FGDs with WASH practitioners, including facilitators of the 2021 Gap Analysis

**Question:** What are the barriers to safe menstrual hygiene materials and practice in Somalia?

## Lack of underwear and cloth pads

- Lack of access to pads is mainly due to a lack of money to buy the pads. Families have competing priorities for purchases, such as food, so sanitary towels are not a priority. There should be either cash or in-kind distributions to enable community access to sanitary pads, and support to local markets to ensure availability and accessibility.

- There are private companies importing sanitary pads, but affordability of pads is a challenge. Even when cash is provided by organisations, money can be diverted to other uses.

## Separate bathrooms and privacy

- There are no separate latrines for girls and boys in most schools. Because of that, girls find it difficult to attend school during their periods. Also, there are no safe spaces for girls to change their pads and to rest when required.

- Girls/women have to hide themselves when washing menstrual materials to avoid being seen.
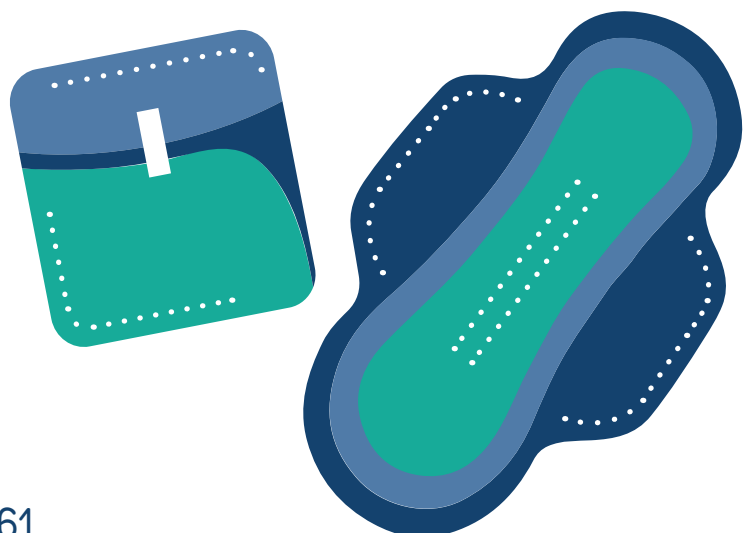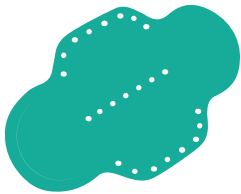
## Education and training

- There is a low education/literacy level, especially knowledge on self-management during their period. There are very few female teachers, and so girls do not have anyone to talk to about menstruation in schools. A MHM curriculum should be included in schools to promote change, and female teachers and safe spaces should be encouraged in schools.

- Men, women, and religious leaders should be engaged on the MHM agenda and ensure communities are aware and begin to change attitudes towards MHM.

- There is a need to train communities in how to tailor reusable sanitary pads and provide start-up grants, as local producers should be supported to manufacture reusable pads. This issue should be prioritised as part of humanitarian and development interventions.

## Waste management

- There is lack of knowledge on how to properly dispose of used pads, and a lack of facilities.

## Cultural, behaviour change, and health issues

- There are cultural taboos related to MHM, as a woman/girl during her period is "not supposed to mingle or be in contact with people". As such, women stay indoors during their periods.

- There are also community perceptions related to marriage age, as "girls in puberty would not like parents to know they are already having their periods because they will be given away for marriage".

- There is stigma when buying pads, especially when purchasing from men.

- Use of improperly dried old cloths for MHM can cause infections

## Engagement and sharing information

- It is recommended to integrate MHM with other sectors, to address needs.

- There is a lack of adequate information to engage the community.

# **4.5** Summary of Direct Feedback

Across the Direct Feedback data sources, we saw differences in discussants/ respondents and a lack of alignment of gaps (Figure 11). People affected by crises primarily wanted services: water, sanitation, solid waste disposal, and hygiene items. Global survey respondents primarily wanted better mechanisms to provide services:

collaboration with goverment, WASH expertise, and community engagement. WASH practitioners from the FGDs fell in the middle. Of note in the Direct Feedback results is the consistent message that people want better WASH services, but did not list WASH research or innovation gaps.

## **Figure 11:**

### Summary of direct feedback
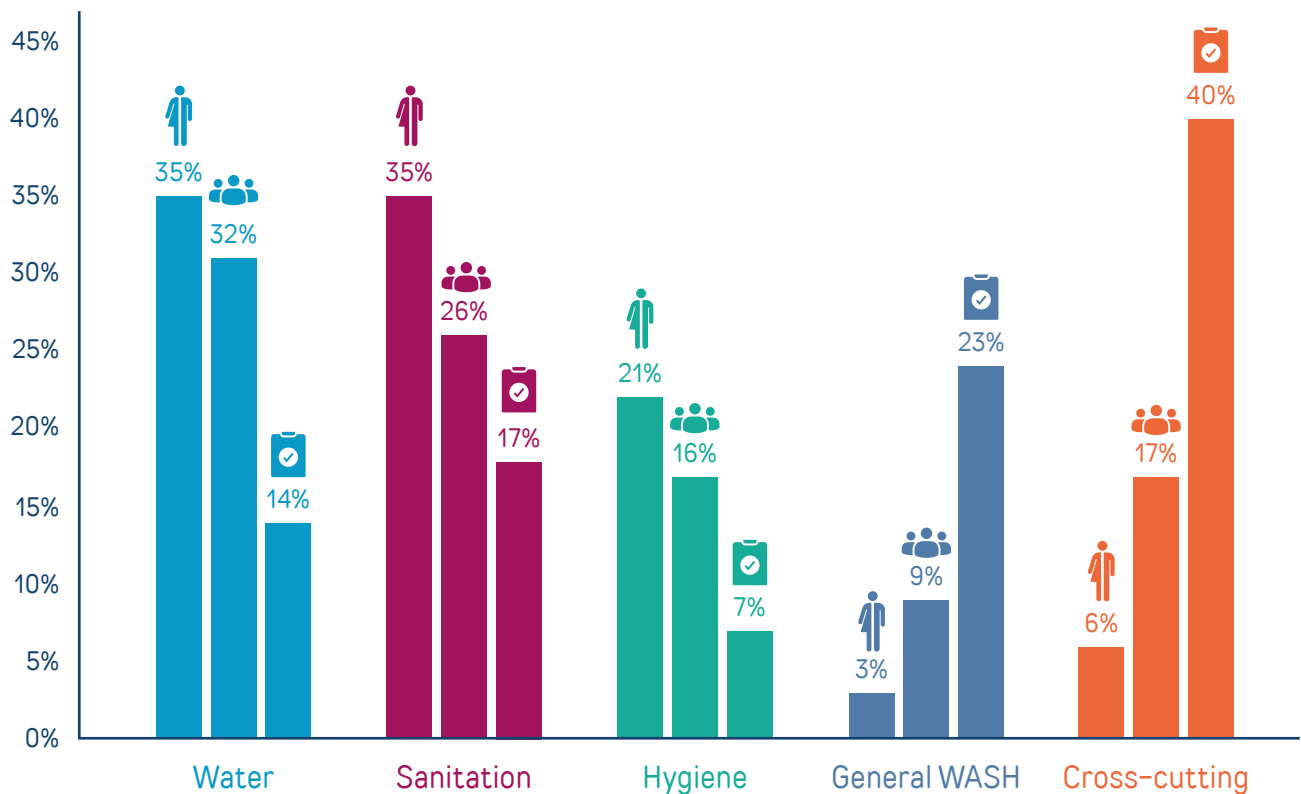


FGD - People Affected by Crises    FGDs with Practitioners    Online Survey

# 4.6 Existing Literature

Overall, 614 documents were reviewed, including the 2013 Gap Analysis, three (3) Yates' reviews documents, 89 WASH General manuscripts, 369 WASH Specific manuscripts, and 152 grey literature documents. In total, 3,151 gaps were extracted, including 75 from the 2013 Gap Analysis, 71 from Yates' reviews, 470 from WASH General literature, 1,652 from WASH Specific, and 883 from grey literature.
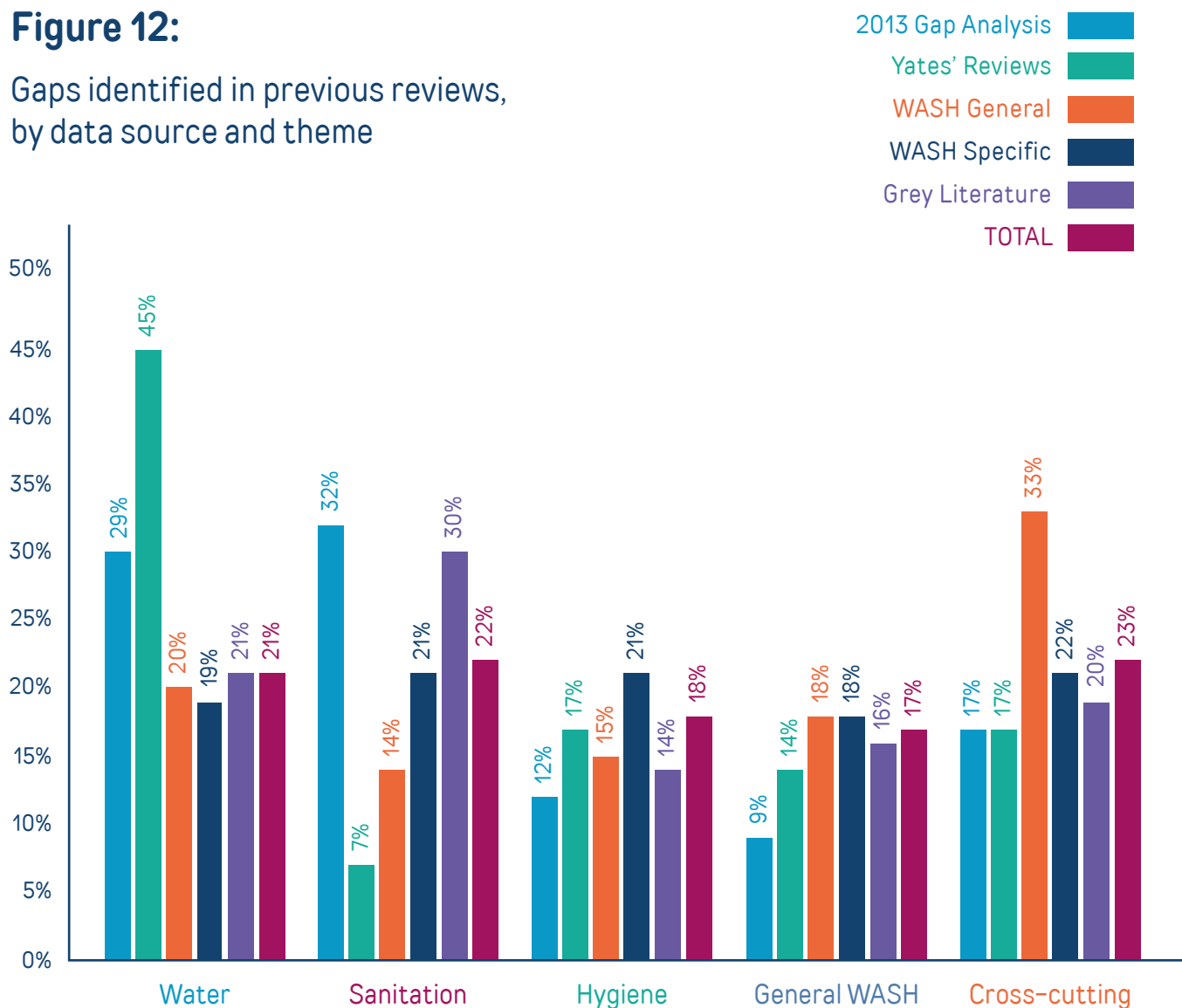
The ratio of gaps, by theme, varied across the data sources, with proportionally: more water gaps in the Yates' reviews; more sanitation gaps in the 2013 Gap Analysis and grey literature; and, more cross-cutting gaps in WASH General literature (Figure 12). In total across the data sources, however, there was more similarity, with between 17-23% of gaps in each of the five main theme categories.

## Figure 12:

Gaps identified in previous reviews, by data source and theme



**Legend:**
- 2013 Gap Analysis
- Yates' Reviews
- WASH General
- WASH Specific
- Grey Literature
- TOTAL

| Theme | 2013 Gap Analysis | Yates' Reviews | WASH General | WASH Specific | Grey Literature | TOTAL |
|-------|-------------------|----------------|--------------|---------------|-----------------|-------|
| Water | 29% | 45% | 20% | 19% | 21% | 21% |
| Sanitation | 32% | 7% | 14% | 21% | 30% | 22% |
| Hygiene | 12% | 17% | 15% | 21% | 14% | 18% |
| General WASH | 9% | 14% | 18% | 18% | 16% | 17% |
| Cross-cutting | 17% | 17% | 33% | 22% | 20% | 23% |

When classified into 19 major grouped categories (with any category >5% of the gaps per literature source presented in the pie graphs), again there were differences between literature sources (Figure 13). Across all five of the literature review sources, there were seven major categories that accounted for >5% of the gaps, including: concerns with household behaviour, need for sanitation, need for safe water, need research, need for collaboration with other sectors, need good staffing, and need FSM.

When all 3,151 gaps from the literature review were classified by theme into 58 categories, 35 categories had 20 or more mentions and accounted for 92% of gaps (Figure 14). The Top 10 most mentioned categories accounted for 48% of total gaps and are listed in **Table 4** on the following pages. Please note that 'weak hygiene practices and knowledge' includes both 'lack of knowledge' and 'need for hygiene education/training'.

An important aspect of the literature review gaps is how many specifically mentioned specific diseases (e.g. diarrhea, cholerae, typhoid, Ebola), and how many research gaps mentioned specific organisms (e.g. protozoa, viruses, source tracking). For example, a literature gap would say 'Need clean water to reduce E. Coli', while a datapoint from FGD with people affected by crises would say 'Need clean water'. The health focus of the literature was clearly apparent when reviewing the gaps, especially in the 'research WASH' gaps (which were predominantly about linking WASH to health impacts) and in 'linking with others sectors' gaps (which were predominantly about linking to the health sector).
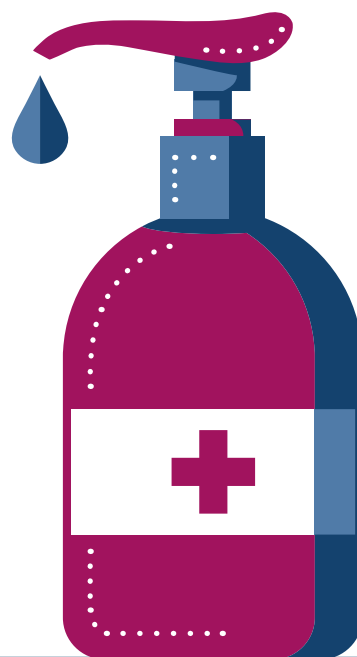
## Table 4:

Most-mentioned gaps from literature
review, by category

| | Theme | | Category | Number | % |
|---|---|---|---|---|---|
| 1 | | Hygiene | Weak hygiene practices and knowledge | 261 | 8% |
| 2 | | Water | Need for water supply and provision | 197 | 6% |
| 3 | | General WASH | Research WASH | 175 | 6% |
| 4 | | Cross-cutting | Linking with other sectors | 165 | 5% |
| 5 | | Cross-cutting | Need for collaboration and coordination (including governance) | 157 | 5% |
| 6 | | Sanitation | Need for sanitation access and coverage | 130 | 4% |
| 7 | | General WASH | Need for WASH staff capacity/training/expertise | 122 | 4% |
| 8 | | Sanitation | Poor quality sanitation services | 113 | 4% |
| 9 | | Sanitation | Need for FSM | 105 | 3% |
| 10 | | General WASH | Need for WASH funding | 89 | 3% |

# Figure 13:

## Major category, by literature review source



### 2013 Gap Analysis
- 13%
- 13%
- 11%
- 8%
- 8%
- 8%
- 7%
- 7%
- 25%

### Yates' Reviews
- 18%
- 6%
- 6%
- 6%
- 7%
- 7%
- 8%
- 42%

### WASH General
- 27%
- 13%
- 12%
- 11%
- 10%
- 8%
- 7%
- 6%
- 6%

### WASH Specific
- 29%
- 20%
- 13%
- 11%
- 8%
- 8%
- 6%
- 5%

### Grey Literature
- 33%
- 15%
- 13%
- 8%
- 7%
- 7%
- 6%
- 6%
- 5%

### TOTAL
- 36%
- 16%
- 11%
- 9%
- 9%
- 7%
- 6%
- 6%

**Legend:**
- Other
- Need safe water
- Need sanitation
- Household behaviour
- Need collaboration
- Need items
- Research
- Planning
- Monitoring
- Need funding
- Need coordination
- Need good staffing
- Need FSM
- Need WASH
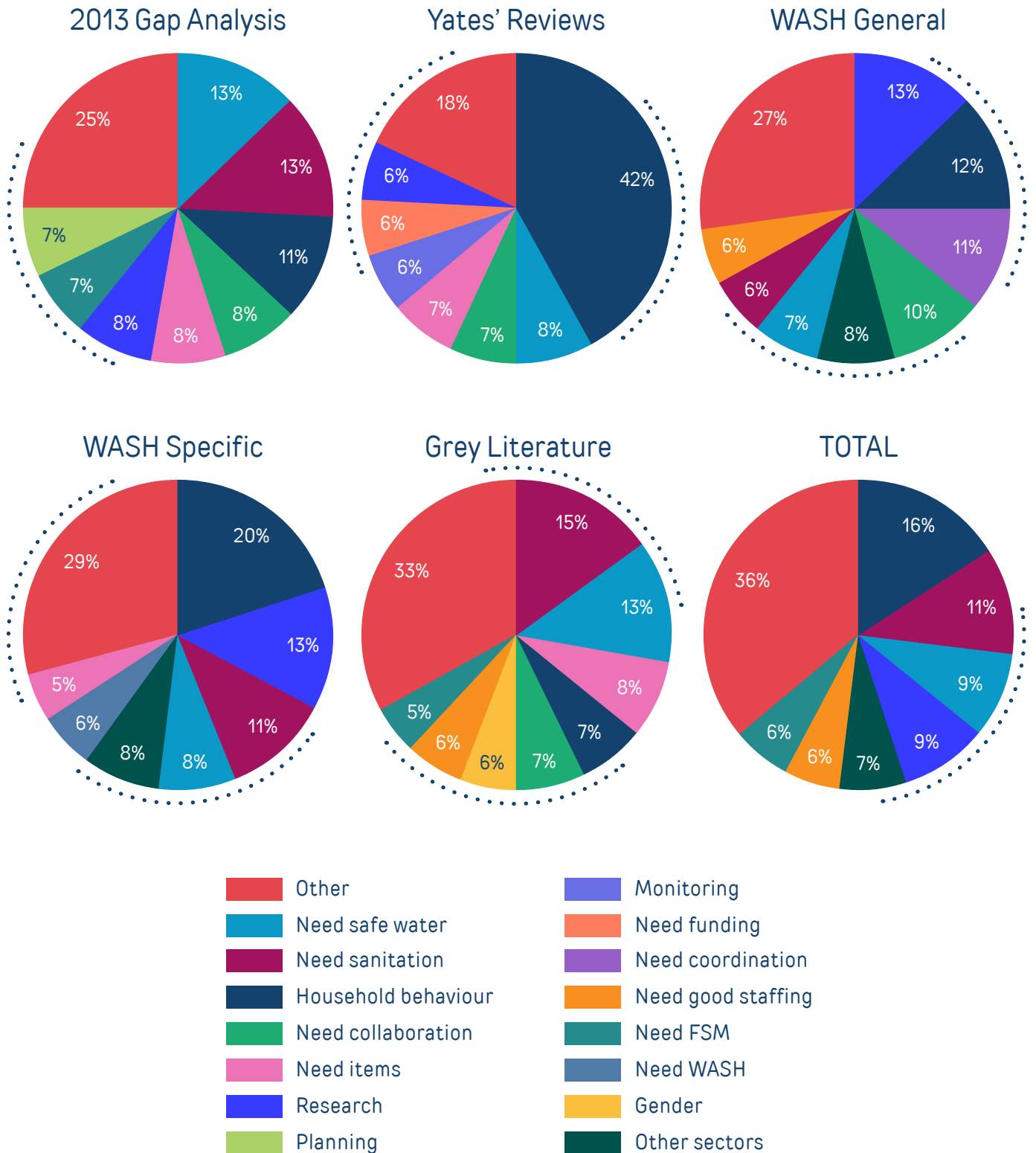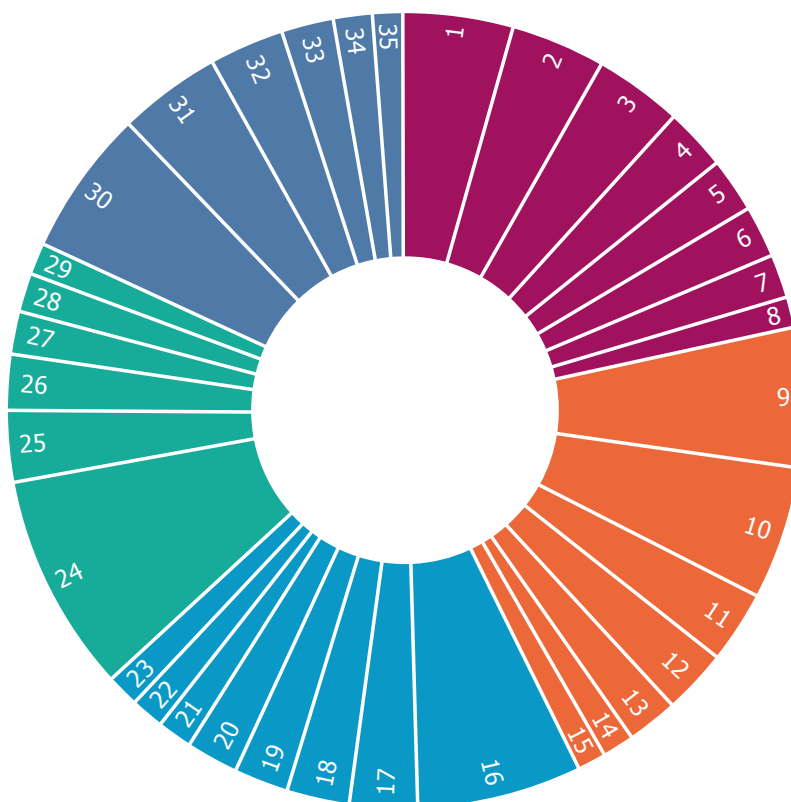- Gender
- Other sectors

67

# Figure 14:

## Gaps with ≥20 mentions in all literature reviews, by theme and category



**Sanitation**

**1** Need for sanitation access and coverage: 4.1%

**2** Poor quality sanitation services: 3.6%

**3** Need for FSM: 3.3%

**4** Concerns around sharing/safety of latrines (gender): 2.3%

**5** Improper solid waste disposal: 2.0%

**6** Concern with open defecation practices: 1.9%

**7** Weak knowledge around sanitation: 1.6%

**8** Research Sanitation: 1.1%

**Cross-cutting**

**9** Linking with other sectors: 5.2%

**10** Need for collaboration and coordination (including governance): 5.0%

**11** Need for community engagement: 2.6%

**12** Lack of monitoring and surveillance: 2.4%

**13** Need for data sharing, tools, and documents: 1.9%

**14** Need for sustainability and ownership: 1.1%

**15** Needs for gender inclusion/prevention GBV: 1.0%

**Water**

**16** Need for water supply and provision: 6.3%

**17** Need for water supply planning (Environment/ Flooding/WRM/WSP): 2.5%

**18** Poor source water quality: 2.3%

**19** Lack of containers and poor storage practices: 2.1%

**20** Poor domestic water treatment practices: 1.9%

**21** Lack of access or acceptance of HWT: 1.4%

**22** Research Water: 1.3%

**23** Need to repair/improve current water supply: 1.2%

**Hygiene**

**24** Weak hygiene practices and knowledge: 8.3%

**25** Lack of MHM knowledge, taboos on MHM, or lack of privacy for MHM: 2.6%

**26** Lack of access to hygiene tools, kits and products: 2.1%

**27** Need for handwashing stations: 1.6%

**28** Research Hygiene: 1.5%

**29** Lack of MHM materials: 1.2%

**General WASH**

**30** Research WASH: 5.6%

**31** Need for WASH staff capacity/training/ expertise: 3.9%

**32** Need for WASH funding: 2.8%

**33** Lack of access to WASH services: 2.0%

**34** Need for WASH for special needs: 1.5%

**35** Need for WASH operations and maintenance: 1.1%

# Discussion and Conclusions

# Discussion and Conclusions

For the 2021 Gap Analysis, data were collected from two different types of sources, namely:

1)  Direct feedback (including a global survey, FGDs with responders and people affected by crises, and case studies)

2)  Literature reviews.

Overall, a total of 6,039 gaps were identified, including 2,888 (48%) from direct feedback and 3,151 (52%) from literature reviews.

In the previous sections, this report has summarised the detailed results by data stream. In this section, we triangulate and discuss the high-level results across all data streams.

## Distribution across high level categories

All data points were coded as belonging with one of five headline categories. **Table 5** shows how many gaps within each category emerged from each data stream, highlighting the significant differences in what has been most frequently mentioned by each group.

### Table 5:

#### Number of gaps extracted, by data source and theme

| | Water | Sanitation | Hygiene | General WASH | Cross-Cutting | TOTAL |
|---|---|---|---|---|---|---|
| FGD-PAC | 352 (35%) | 352 (35%) | 208 (21%) | 35 (3%) | 60 (6%) | **1,007** |
| FGD-Practitioner | 238 (32%) | 192 (26%) | 123 (16%) | 66 (9%) | 131 (17%) | **750** |
| Online Survey | 156 (14%) | 187 (17%) | 78 (7%) | 263 (23%) | 447 (40%) | **1,131** |
| Literature Reviews | 648 (21%) | 698 (22%) | 561 (18%) | 533 (17%) | 711 (23%) | **3,151** |
| **TOTAL** | **1,394 (23%)** | **1,429 (24%)** | **970 (16%)** | **897 (15%)** | **1,349 (22%)** | **6,039** |

**Table 6:**

Top 10 Gaps by Data Source

The table below summarises these findings in more detail. It shows for each data stream the **ten most frequently mentioned gaps ranked in descending order by how much they were mentioned.**

| Gap Rank | FGDs with People Affected by Crises | FGDs with Practitioners | Online Survey | Literature Reviews |
|---|---|---|---|---|
| 1 | Need for water supply and provision | Need for water supply and provision | Need for collaboration and coordination (including governance) | Weak hygiene practices and knowledge |
| 2 | Need for sanitation access and coverage | Improper solid waste disposal | Need for WASH staff capacity/training/expertise | Need for water supply and provision |
| 3 | Improper solid waste disposal | Weak hygiene practices and knowledge | Need for community engagement | Research WASH |
| 4 | Lack of access to hygiene tools, kits, and products | Need to repair/improve current water supply | Need for water supply and provision | Need to link with other sectors |
| 5 | Need to repair/improve current water supply | Need for sanitation access and coverage | Need for sustainability and ownership | Need for collaboration and coordination (including governance) |
| 6 | Lack of containers, and poor storage practices | Need for FSM | Need for WASH funding | Need for sanitation access and coverage |
| 7 | Poor quality sanitation services | Poor source water quality | Improper solid waste disposal | Need for WASH staff capacity/training/expertise |
| 8 | Weak hygiene practices and knowledge | Need for collaboration and coordination (including governance) | Need for sanitation access and coverage | Poor quality sanitation services |
| 9 | Lack of MHM materials | Need for water supply planning | Need to link with other sectors | Need for FSM |
| 10 | Need for water supply planning | Poor quality sanitation services | Need for data sharing, tools, and documents | Need for WASH funding |

Across this matrix data, two trends of note can be observed: firstly, that results were disparate across data streams and did not align; and secondly, that there were differences between direct feedback and literature reviews, especially in terms of the latter stream's stronger health focus.

This lack of alignment makes data analysis more challenging, and is in contrast to previous work on coordination where results did align across different data streams.[14]

In summary, the **results from the four different data streams showed:**

**People affected by crises** listed gaps related to **basic services**, including water, sanitation, solid waste disposal, and hygiene items. They were, unsurprisingly, most concerned with the 'what': they want better services.

**WASH practitioners** also listed gaps related to **basic services** (water, sanitation, solid waste disposal), but also in the Top 10 gaps was the need for hygiene education and for collaboration. Generally, these participants reflected both on the 'what' and the 'how', considering what it might take to deliver better services.

**Online survey** respondents listed the 'how' gaps more frequently than either of the other two groups. They were concerned about **improving service provision**, including collaboration and coordination (governance), WASH staff training, community engagement, sustainability and ownership, funding, and need for data sharing. Basic services (water, solid waste disposal, and sanitation) did also appear in the Top 10.

**In the literature reviews**, the main gaps listed related both to 'what' and 'how', including the need to provide education to address weak hygiene practices and knowledge, the need to provide basic services (water, sanitation, FSM), and the need to improve service provision (collaboration, staff capacity, funding). In addition, the literature identified gaps around the 'why', calling for research on showing the health impact of WASH and linking WASH programmes to other sectors. Unique to the literature review documents, many of the gaps had a health focus appended to them.

**14** Yates, T.; Zannat, H.; Khandaker, N.; Porteaud, D.; Bouvet, F.; Lantagne, D., Evidence summary of water, sanitation, and hygiene (WASH) coordination in humanitarian response. Disasters **2020**.

While the analysis found that different groups of stakeholders between and within each direct feedback data stream had different perspectives and thoughts on the most important WASH gaps (including some differences in responses by gender and disability status) few were statistically significant, and differences were inconsistent. At the very top level, we can therefore conclude, unsurprisingly, that the direct feedback calls for the WASH sector to 'continue what we are doing, but better, and reaching more people', while the literature findings suggest that we need to 'complete more research to show the health basis/impact of WASH interventions'.

The three case studies that were completed - in Ethiopia, Somalia, and Yemen - provided more detail on the specific local reasons for gaps and highlighted, and provided context for, the category of gaps identified. While these are contextual specific snapshots for which findings should not be generalised, they illustrate how additional in-country unpacking of the gaps will help to understand root causes and, therefore, how the gaps may be addressed.

However, given the recent experience[15] of large–scale health impact trials failing to show a health impact for WASH interventions, it might be recommended to focus on WASH as a fundamental human right, and consider more than just the health benefits of WASH as we look for evidence 'proving' the value of WASH.

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15  Cumming, O.; Arnold, B. F.; Ban, R.; Clasen, T.; Esteves Mills, J.; Freeman, M. C.; Gordon, B.; Guiteras, R.; Howard, G.; Hunter, P. R.; Johnston, R. B.; Pickering, A. J.; Prendergast, A. J.; Prüss-Ustün, A.; Rosenboom, J. W.; Spears, D.; Sundberg, S.; Wolf, J.; Null, C.; Luby, S. P.; Humphrey, J. H.; Colford, J. M., Jr., The implications of three major new trials for the effect of water, sanitation and hygiene on childhood diarrhea and stunting: a consensus statement. BMC Med **2019**, 17, (1), 173.

# Limitations of findings

Limitations of the 2021 Gap Analysis include that:

1) Gaps identified relate to the needs of today, and the research does not seek to project needs of the future

2) Gaps were not weighted in the analysis to reflect the slightly different sample sizes and ways of collecting the data

3) The global survey was specific to NGO delivery, and there were insufficient other perspectives

4) This research methodology was very broad geographically and by respondent characteristics (but due to its strong quantitative element it was not possible to include an equally strong qualitative element across all the contexts in which data was collected). Thus, there is a need to understand the depths of the gaps.

In addition, we must assume that there are 'unknown unknowns' that this data has not captured. There are limitations to all data collection methods, and disadvantages of FGDs, for example - including 'group think' and limited ability to talk about more sensitive or personal topics. To understand what some of these unknowns might be, the project partners held a workshop with the Review Group, asking experts the question: 'What gaps do you think are missing from this report?' Responses fell into two categories: programming unknowns (delivery and market-based solutions, WASH integration with other sectors to improve outcomes, limitations of implementer capacity, environmental impacts of WASH provision, climate change and groundwater resource monitoring), and population-specific unknowns (non-health perspectives, stateless people with unique needs, and concerns about stigma of vulnerable and marginalised populations - including non-binary gender groups). A more complete list of unknown unknowns should be generated and further explored as part of the work in taking this gap analysis forward.

# Conclusion

This research contributes a uniquely extensive dataset on gaps in emergency WASH. It allows WASH actors to take stock, at a country, regional and global level, of what people affected by crises experience as the most urgent problems to address. It also offers a triangulation with the priorities of WASH professionals as well as gaps identified in recent literature.

The gaps do not provide an easy and tangible 'to-do list'. More work is needed to contextualise the gaps and understand their root causes before clear recommendations on how to address them can be generated.

Specifically, more research and concerted action is recommended to determine:

- How the gaps identified and any plans to further explore and address them can align with the recently created WASH sector Roadmap 2020–2025

- How existing evidence and solutions can fill identified gaps and where new research and innovation may be needed

- How each individual donor, responder, government, agency, and research institution can incorporate the results of this report to inform their programming, to engage and participate with the humanitarian cluster coordination platforms (where activated), incorporate results into guidance (e.g. Sphere Standards), and improve WASH humanitarian response activities to reduce the burden of disease and provide dignity and security to people affected by crises.

Some gaps may be immediately fixed by programming changes. Others may require a longer-term commitment to targeted research and innovation. What is clear from this research, however, is that it cannot be assumed that those involved in **delivering** WASH have the same priorities as those receiving the services. In addressing the gaps set out in the 2021 Gap Analysis, it will be critical to consider whose needs we are trying to meet, and to ensure that all the different experiences and perspectives inform how to build more effective humanitarian WASH responses.

**An accompanying cover note by Oxfam, GWC and Elrha discusses the findings of the Gap Analysis, explores these questions further and proposes next steps.**

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