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Effectiveness of coordination in humanitarian water, sanitation, and hygiene (WASH) response: evidence from a mixed-methods evaluation of outcomes and outputs across five national coordination platforms

Daniel Nguyen^{1,2*}, Camille Heylen³, Cora Cunningham⁴, Aliocha Salagnac⁵, Monica Ramos⁵ and Daniele Lantagne⁶

Abstract

Background Coordination is key to effective humanitarian response, which is growing in need. The Global Water, Sanitation, and Hygiene (WASH) Cluster developed a Theory of Change (ToC) to revise their Minimum Requirements for monitoring Basic Assumptions and Core Actions as coordination frameworks. This study assessed how the ToC and Minimum Requirements were met in five national coordination platforms (NCPs) with different staffing levels.

Methods We conducted a six-month mixed-method evaluation across five humanitarian contexts varying in coordination staffing levels: Central African Republic (low), Colombia (low), Democratic Republic of the Congo (DRC) (medium), Nigeria (medium), and Yemen (high). Overall, 31 monthly activity reports from NCPs, 20 key informant interviews (KIIs) with NCP staff, 94 KIIs with partners, and 475 online surveys with NCP members were conducted. KIIs and online surveys were analyzed to determine whether contexts were meeting Minimum Requirements and ToC outcomes, respectively. Data were triangulated to score contexts (0–3) on whether they met Basic Assumptions and Core Actions.

Results Nigeria had the highest percentage of survey respondents who thought the WASH coordination platform helped them meet ToC outcomes (39%–89%), with Yemen having the lowest (24%–78%). Completing monitoring and evaluation and evaluating program quality were ToC outcomes least reached, as reported by 50% or less of respondents in all contexts. Informants across contexts were similarly meeting Minimum Requirements, especially in Coordination and Information Management, and Response and Gap Analysis. Respondents did not agree regarding Strategic Planning and Advocacy Strategy. As planned, findings revealed a statistically significant difference in meeting Basic Assumption 1: Staffing and Structure between Yemen, scoring 2.58, and DRC, scoring 1.58 ($p=0.026$). Over 50% of respondents in all contexts reported that the WASH NCP helped them meet outcomes by making strategic decisions and identifying response gaps.

*Correspondence:

Daniel Nguyen
nguyen.dan@tufts.edu

Full list of author information is available at the end of the article



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Conclusions We found that incorporating the ToC into the Minimum Requirements successfully supported humanitarian WASH responses. Additionally, while staffing levels are necessary to achieve response outputs and outcomes, they are not sufficient. Other factors, such as poor funding, inadequate monitoring and evaluation, and a need for localization, also impacted response outputs and outcomes. In a time of reduced humanitarian funding, investment in Global WASH Cluster coordination has shown to enhance response outputs and outcomes. Recommendations include dedicating staffing, developing standardized monitoring and assessment tools, strengthening inter-sectoral collaboration, and continuing accountability to affected populations. Further research on monitoring and evaluation, funding, affected population needs, and sub-national coordination is indicated.

Keywords Complex humanitarian emergency, Cluster approach, Crisis, Disasters, Emergency, Environmental health, Non-governmental organizations

Introduction

According to the 2025 Global Humanitarian Overview report by the United Nations, 305.1 million people across 72 countries are in need of humanitarian assistance [1]. Coordination is a key component of effective humanitarian response, aiming to establish a complementary and collaborative approach between humanitarian actors for better collective results [2]. In 2005, the Inter-Agency Standing Committee (IASC) developed the Cluster coordination approach to increase efficiency in humanitarian response by bringing together relevant stakeholders across 11 internationally recognized sectoral clusters, one of which is water, sanitation, and hygiene (WASH) [3]. The United Nations Children's Fund (UNICEF) acts as the designated Cluster Lead Agency for the Global WASH Cluster (GWC), consisting of international organizations, international non-governmental organizations (INGOs), national non-governmental organizations (NNGOs), academic institutions, government bodies, and donors [4]. The GWC supports National Coordination Platforms (NCPs) in activated humanitarian contexts, in which coordination mechanisms are formally operating [5]. GWC and NCP partners commit to contribute to key cluster Core Functions, including the Strategic Advisory Groups and Technical Working Groups, and participate in common assessments, coordination meetings, strategic planning, and reporting [6].

The Cluster approach aims to improve humanitarian response by meeting the IASC's 6 + 1 Humanitarian Core Functions: (1) support service delivery; (2) inform the Humanitarian Coordinator/Humanitarian Country Team's strategic decision-making; (3) plan and implement cluster strategies; (4) monitor and evaluate performance; (5) build national capacity in preparedness and contingency planning; and (6) support robust advocacy, while also (+ 1) ensuring accountability to affected populations [7].

Although the staffing of coordination platforms varies by emergency context, there is usually a Coordinator and an Information Manager at the national level. The Coordinator is responsible for facilitating improved coordination and equal partnerships between all actors involved

in the WASH response, whereas the Information Manager aims to collect, store, analyze, and share data with stakeholders to provide an evidence-based, transparent basis for decision-making [8]. Depending on the country's size and WASH needs, the coordination can be further divided into sub-NCPs, which can also have their own Coordinators and Information Managers. However, despite these recommendations and needs, not all coordination platforms are fully staffed, oftentimes due to financial constraints [1, 9].

Since 2017, Tufts University and the GWC/UNICEF have collaborated on two research studies to understand the value of WASH coordination to humanitarian response. In the first study, internal UNICEF documents and key informant interviews (KIIs) were conducted, and a Theory of Change (ToC) for WASH coordination in humanitarian response was developed [10]. In the second study, NCP partners in three contexts were interviewed, and the ToC was refined with partner input [11]. The verified ToC was used to revise the Minimum Requirements (Fig. 1), a framework for monitoring the Core Functions of the WASH coordination platforms at the country level, alongside other initiatives [6, 12]. The Minimum Requirements include a list of Basic Assumptions and Core Functions, which consist of Core Actions. There are five Basic Assumptions that are essential for effective coordination, for which the national WASH coordination platform staff are not responsible, and there are 12 Core Actions for which they are responsible (Fig. 1).

As these previous studies highlighted the importance of staffing in WASH coordination, further research was recommended to explore the cost of not supporting coordination across different humanitarian contexts. Using the previously developed ToC for WASH coordination and the Minimum Requirements as existing frameworks, Tufts University and UNICEF sought to assess the value-add of different WASH coordination staffing levels on outputs and outcomes in humanitarian emergencies.

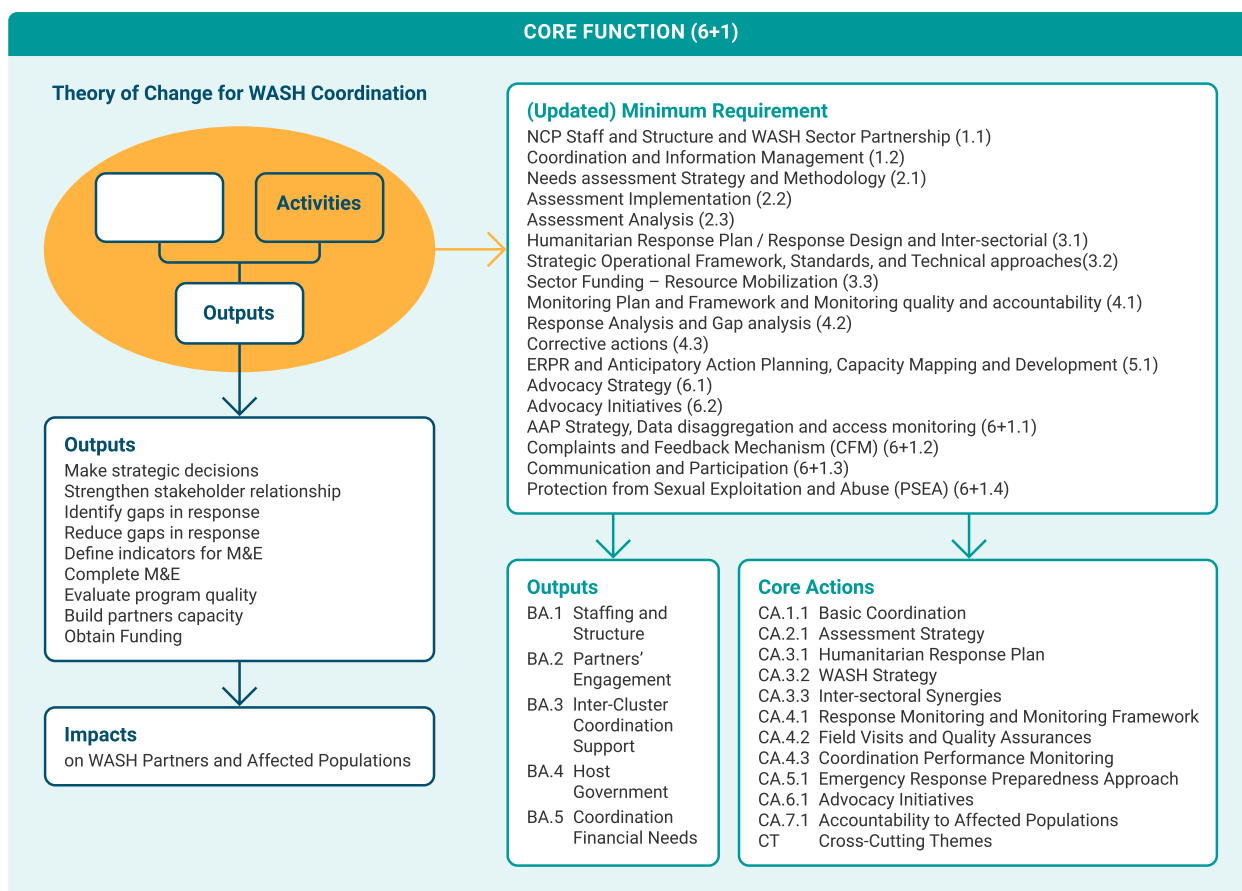


Fig. 1 Theory of change and the minimum requirements to achieve and assess the 6 + 1 core functions and the intended impact on partners and affected populations

Methods

Five humanitarian contexts were selected for this mixed-methods study, which was completed over two time points in a 6-month period, including four types of data collection: (1) monthly activity reports from NCP staff; (2) KIIs with NCP staff; (3) KIIs with partners; and (4) online surveys open to anyone self-defining as being involved in the WASH response.

Context selection

In collaboration with the GWC, Central African Republic (CAR), Colombia, Democratic Republic of the Congo (DRC), Nigeria, and Yemen were chosen to take part in the evaluation. These contexts were selected to account for their perceived differences in coordination staffing levels at the time of the study, according to the GWC. At the study outset, Yemen was perceived as a high-staffed NCP, DRC and Nigeria as medium-staffed, and CAR and Colombia as low-staffed (Fig. 2) [13–17]. In Nigeria, data was specifically collected in Northeast Nigeria, and humanitarian WASH sector coordination was only set at the regional level, but this context will be referred to as Nigeria for the rest of the manuscript.

Monthly activity reports from WASH NCP staff

A survey was created and distributed via a web-based platform (Qualtrics, Provo, USA) to collect monthly activity reports. The survey included information on WASH coordination platform functionality with detailed tracking of staff availability, support received, Core Functions developed during the month, and outcomes reached during the month. Every month, from November 2022 to April 2023, an email was sent to WASH NCP staff (and to the sub-national level if relevant in the context) to remind them to complete this report.

KIIs with WASH NCP staff

To conduct KIIs with WASH NCP staff, a 33-question interview guide was developed, exploring the context, Basic Assumptions, Core Functions, and outcomes of the coordination platform, as well as barriers, impact, and evolution of the coordination. Across all five contexts, the goal of conducting these KIIs was to interview, at a minimum, the national Coordinator and the Information Manager twice over the course of the study. Other NCP staff (including national co-Coordinators and

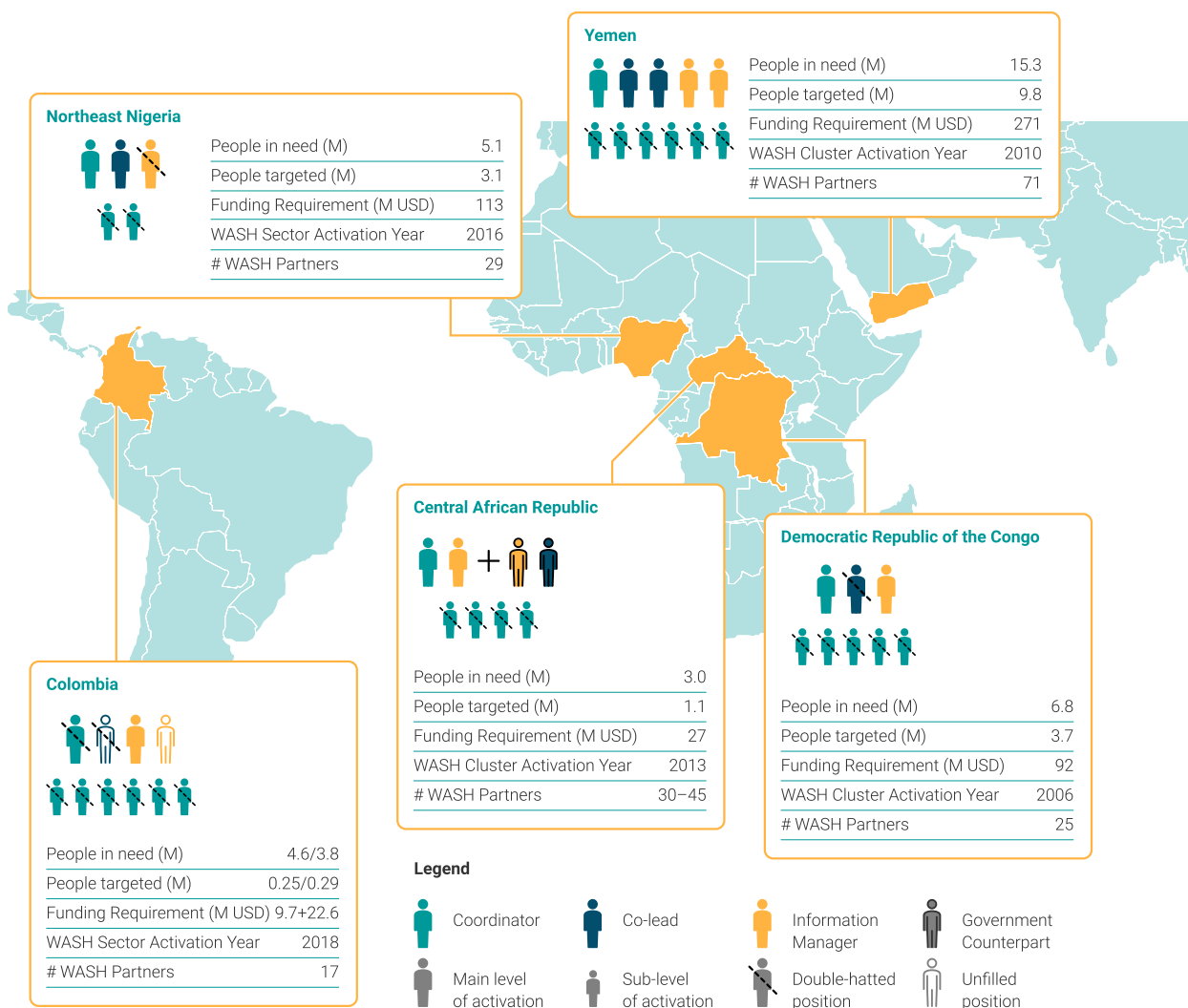


Fig. 2 Description of the context and staffing of the evaluated WASH coordination platforms

sub-national Coordinators) were recruited according to context, in collaboration with the NCP Coordinator.

KIIs with partners

To conduct KIIs with partners, a 26-question interview guide was developed, exploring similar themes as the interviews with WASH NCP staff, apart from Basic Assumptions, as partners are not specifically aware of or are held responsible for them. We aimed to interview 10–20 individuals per context twice in the 6-month study (at one month and six months). To recruit informants, email addresses were randomly selected from the NCP contact list, using a representative sample based on role (INGOs, NNGOs, government, donors, United Nations, or observers). The goal was to have at least three participants from national and international organizations, as well as at least one government and one donor representative. If the initially selected partners did not complete

the second interview, new partners were randomly selected and recruited from the same contact list.

Online surveys

A 16-question online survey was developed in Qualtrics to collect quantitative information on Core Functions and outcomes, barriers to coordination, and the impact of WASH coordination among anyone involved in the WASH response. The survey was distributed in English and locally appropriate languages by sharing the link through the provided NCP contact email lists. The same survey was distributed twice throughout the 6-month study in conjunction with each round of KIIs.

Data analysis

KIIs were intended to last about one hour, were conducted in the appropriate language (English, French, or Spanish), were audio recorded, and then were transcribed using Temi software (San Francisco, California,

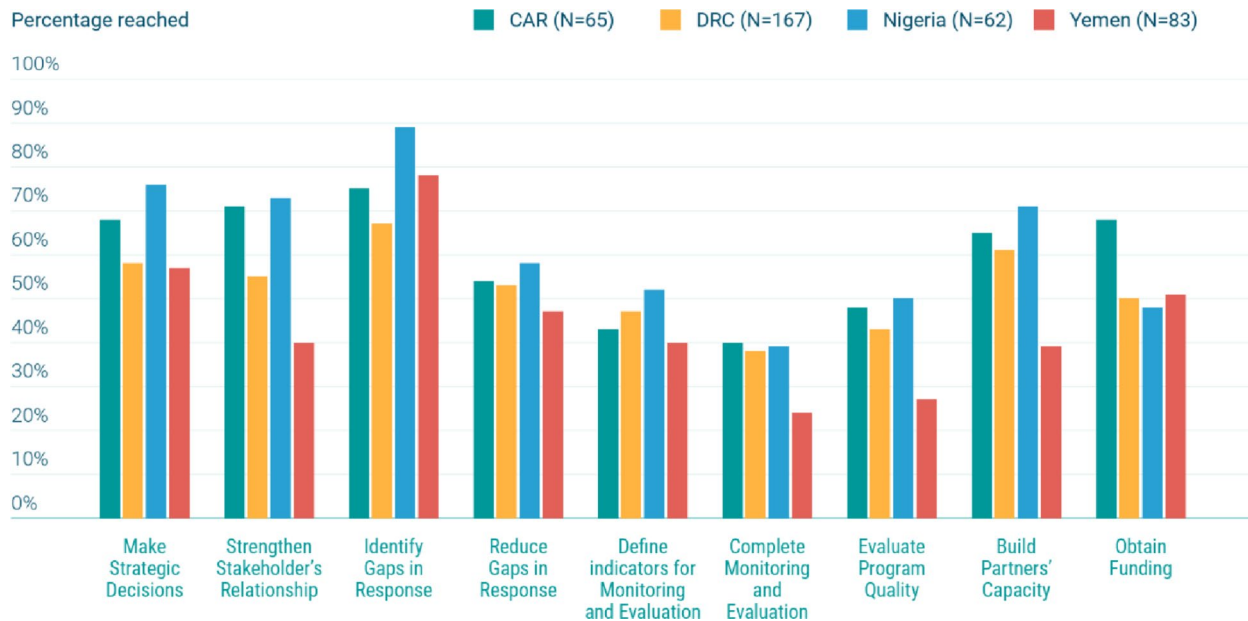


Fig. 3 Theory of change outcomes reached due to WASH national coordination platforms, according to survey respondents, by context

USA), Zoom software (San Jose, California, USA), or by hand. Transcripts were de-identified prior to analysis to maintain participant confidentiality. Activity reports and online surveys were individually downloaded from Qualtrics. All material was uploaded to NVivo (Burlington, Massachusetts, USA) for analysis of unstructured text. Data was first classified by context, Basic Assumptions, and Core Actions from the initial version of the Minimum Requirements, outcomes from the ToC, and impact themes. Applying a deductive content analysis, all data were coded by one researcher using a pre-formed codebook to promote consistency in analysis.

Our analysis assessed various components of our ToC (Fig. 1), beginning with staff and partner KII findings to determine whether contexts were perceived to be meeting expectations of the Minimum Requirements. It should be noted that the percentage of mentions was calculated using the number of interviews rather than the number of unique informants. Results from online surveys were used to determine whether contexts were achieving ToC outputs and outcomes. Lastly, all four data collection types were triangulated to manually score the five contexts in terms of meeting the Basic Assumptions and Core Actions, on a 0–3 scale. A score of 0 means no data was provided for criteria that make up a Basic Assumption or Core Action. A score of 1 indicates the context was not meeting expectations, a score of 2 indicates an area for improvement or where different data points had opposing perspectives, and a score of 3 indicates meeting expectations. Only scores between 1 and 3 were averaged to compute an average score for each Basic Assumption and Core Action. Rather than conducting

separate qualitative and quantitative analyses, we opted for triangulation via this ordinal scoring framework to allow for convergence and integration of multiple types of data on a common scoring system, enhancing construct validity. A one-way analysis of variance with a Bonferroni correction was conducted with raw scores for each country using Stata v18.5 (College Station, Texas, USA: StataCorp LP).

Formal oral and written consent was obtained from each respondent who was willing to participate in KIIs and online surveys, respectively. This study was approved by the Social, Behavioral, and Educational Research Institutional Review Board at Tufts University (STUDY00002894). Local ethics approval was not required as all human subject interactions were conducted remotely.

Results

From November 2022 to June 2023, data were collected across the five contexts, including: (1) 31 monthly activity reports from coordination platform staff, (2) 21 KIIs with coordination platform staff, (3) 94 KIIs with partners, and (4) 475 online surveys (Table 1).

Please note that in 2023, Basic Assumptions were added, and the criteria for Core Functions were slightly modified [18]. Data will be presented first by whether contexts were achieving ToC outputs and outcomes based on online surveys, followed by whether contexts were perceived to be meeting Minimum Requirements based on staff and partner KIIs, and finally by whether contexts were meeting Basic Assumptions and Core

Table 1 Participant characteristics by data collection type

	CAR	Colombia	DRC	Nigeria	Yemen	Total
Activity Reports (N)						
N (%) Activity Reports	10 (32%)	1 (3%)	7 (23%)	5 (16%)	8 (26%)	31 (100%)
Respondent Role						
Coordinator	6 (60%)	0	4 (57%)	4 (80%)	6 (75%)	20 (65%)
Co-Lead	0	0	1 (14%)	0	1 (13%)	2 (6%)
Information Manager	0	1 (100%)	0	1 (20%)	0	2 (6%)
Sub-Coordinator	4 (40%)	0	2 (29%)	0	1 (13%)	7 (23%)
Staff KIs						
N (%) Staff KIs	5 (24%)	4 (19%)	4 (19%)	4 (19%)	4 (19%)	21 (100%)
N (%) Unique Staff Informants	4 (29%)	3 (21%)	2 (14%)	3 (21%)	2 (14%)	14 (100%)
N (%) Interviews by Informant Role						
Cluster/Sector Coordinator	2 (40%)	1 (25%)	2 (50%)	2 (50%)	2 (50%)	9 (43%)
Co-Coordinator	1 (20%)	0	2 (50%)	1 (25%)	0	4 (19%)
Information Manager	1 (20%)	1 (25%)	0	1 (25%)	0	3 (14%)
Sub-Cluster Coordinator	1 (20%)	0	0	0	2 (50%)	3 (14%)
Other	0	2 (50%)	0	0	0	2 (10%)
Partner KIs						
N (%) Partner KIs	17 (18%)	17 (18%)	20 (21%)	19 (20%)	21 (22%)	94 (100%)
N (%) Unique Partner Informants	14 (19%)	13 (18%)	15 (21%)	14 (19%)	17 (23%)	73 (100%)
N (%) Interviews by Informant Role						
NNGO	6 (35%)	3 (18%)	9 (45%)	7 (37%)	2 (10%)	27 (29%)
INGO	6 (35%)	11 (65%)	10 (50%)	10 (53%)	13 (62%)	50 (53%)
Government	3 (18%)	0	1 (5%)	1 (5%)	2 (10%)	7 (7%)
Donor	1 (6%)	0	0	0	4 (19%)	5 (5%)
Other	1 (6%)	3 (18%)	0	1 (5%)	0	5 (5%)
Online Surveys						
N (%) Online Surveys	103 (22%)	1 (0%)	194 (41%)	82 (17%)	95 (20%)	475 (100%)
N (%) Respondent Role (N Respondents = N Interviews)						
Main Level NCP Staff	2 (2%)	0	1 (1%)	1 (1%)	1 (1%)	5 (1%)
Sub Level NCP Staff	1 (1%)	0	0	0	1 (1%)	2 (1%)
NNGO	52 (50%)	0	119 (61%)	36 (44%)	29 (31%)	236 (50%)
INGO	41 (40%)	1 (100%)	43 (22%)	26 (32%)	43 (45%)	154 (32%)
Government	2 (2%)	0	14 (7%)	9 (11%)	7 (7%)	32 (7%)
Donor	1 (1%)	0	2 (1%)	0	3 (3%)	6 (1%)
Other	4 (4%)	0	15 (8%)	10 (12%)	11 (12%)	40 (8%)

Actions based on triangulated data of all four data collection types.

Theory of change outcomes

Nigeria had the highest percentage of respondents who thought the WASH NCP helped them or their organization meet outcomes described by the ToC across almost all outcomes, while Yemen generally had the lowest (Fig. 3). In Nigeria, 76% reported reaching outcomes related to making strategic decisions, followed by 68% in CAR and just under 60% in DRC and Yemen. Similarly, meeting outcomes regarding strengthening stakeholders' relationships were highest in Nigeria (73%) and CAR (71%), while Yemen was lowest (40%). The highest number of participants across contexts reported achieving outcomes of gap identification in their responses, with all contexts exceeding 67%. In their ability to reduce gaps in response,

all contexts were within 10% of one another, with Nigeria having the highest rate (58%) and Yemen the lowest (47%).

Respondents did not report that the WASH NCP helped them meet outcomes regarding monitoring & evaluation (M&E). Only 52% of respondents in Nigeria reported that it helped them define indicators for M&E, followed by 47% in DRC, 43% in CAR, and 40% in Yemen. Subsequently, these results decreased further for contexts' ability to complete M&E: CAR (40%), DRC (38%), Nigeria (39%), and Yemen (24%). Yemen also reported challenges in evaluating program quality (27%), which was lower than all other contexts (43–50%). Excluding Yemen (39%), more than 60% of respondents felt the platform helped them meet the outcomes of building partners' capacity. CAR reported the highest percentage of respondents (68%) who felt the platform helped them

obtain funding, compared to about half of respondents from all other contexts.

Minimum requirements

The Minimum Requirements framework can be found in Fig. 1, representing the essential coordination tools and processes needed for effective country-level coordination. The percentage of mentions regarding meeting expectations for a Minimum Requirement was usually higher than the percentage of mentions about a Minimum Requirement not being met (Fig. 4). For example, coordination platform staff and partners were overall in agreement across contexts for meeting expectations related to Minimum Requirement 1.2: Coordination and Information Management, and Minimum Requirement 4.2: Response and Gap Analysis. However, there were instances in which staff and partners did not agree in terms of meeting or not meeting expectations, as evident by Minimum Requirement 3.1: Strategic Planning, where Yemen and CAR observed a 51% difference and Nigeria a 49% difference between staff and partner interviews. Minimum Requirement 6.1: Advocacy Strategy also

observed discrepancies between staff and partner interviews in Yemen (56%), DRC (40%), and Nigeria (50%). More negative comments were provided for Minimum Requirement 1.2: Coordination and Information Management, Minimum Requirement 3.1: Strategic Planning, Minimum Requirement 4.1: Response Monitoring, and Minimum Requirement 5.1: Preparedness.

Basic assumptions and core actions

Average scores for Basic Assumptions and Core Actions across contexts can be found in Table 2.. Basic Assumption 1: Staffing and Structure, refers to whether the NCPs are appropriately staffed with low turnover and have functionally operational Strategic Advisory Groups and Technical Working Groups. Scores for Basic Assumption 1 ranged from 2.58 (Yemen) to 1.58 (DRC), which was a statistically significant difference ($p=0.026$), indicating that Yemen was statistically significantly more likely to report perceptions of meeting Basic Assumption 1 compared to other contexts. In Yemen, staff and partner informants highlighted enablers of having two Information Manager officers, an organized cluster structure

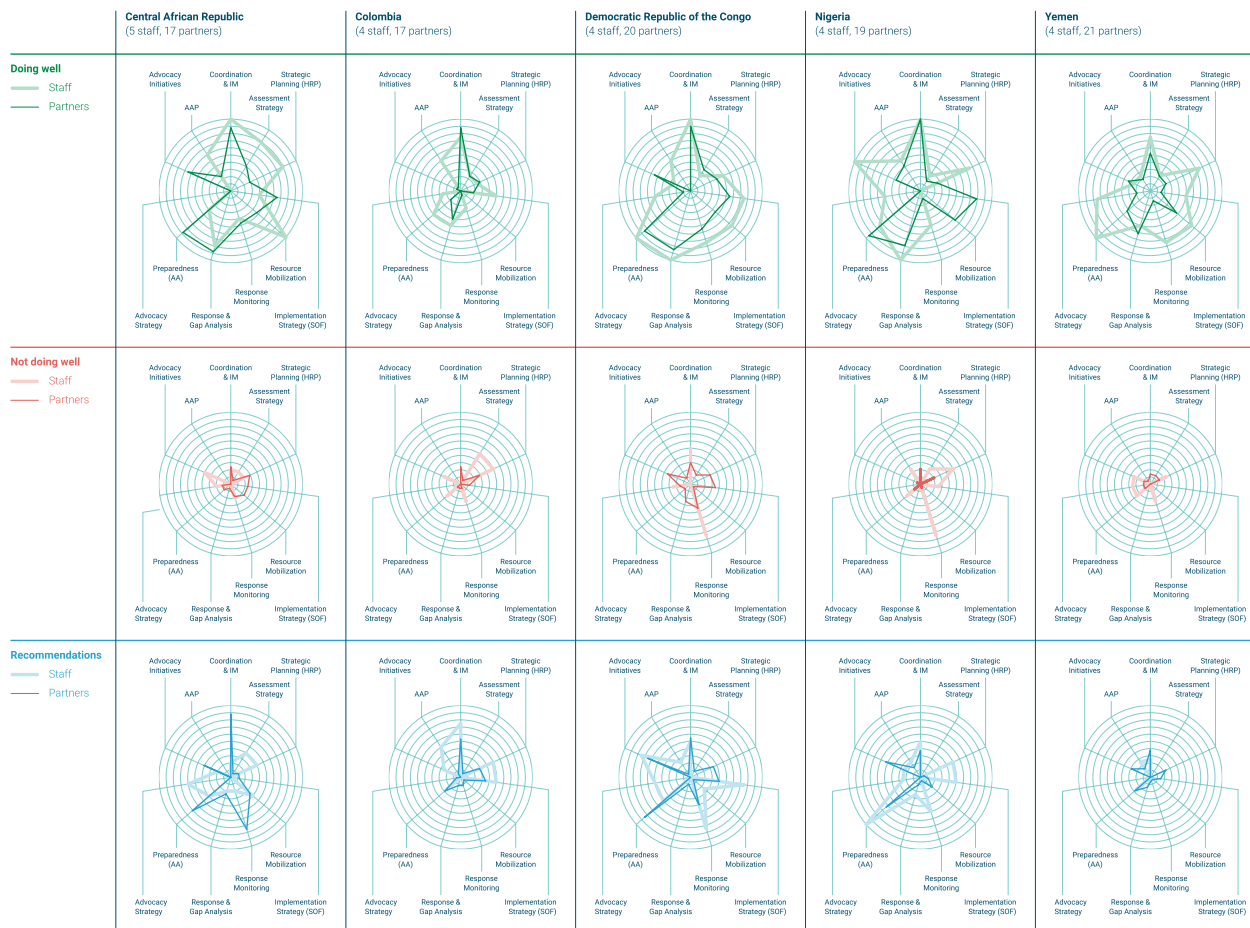


Fig. 4 Percentage of positive, negative, and recommended feedback on Minimum Requirements by context from WASH national coordination platform staff and partners

Table 2 Average scores of basic assumptions and core actions across contexts

0–1 Not meeting expectations 1–2 Area for improvement 2–3 Meeting expectations

Basic Assumption	CAR	Colombia	DRC	Nigeria	Yemen
BA.1 Staffing and Structure	2.21	2.11	1.58*	2.45	2.58*
BA.2 Partners' Engagement	1.50	1.50	2.00	2.00	2.00
BA.3 Inter-Cluster Coordination Support	2.00	0.00	2.33	2.00	2.50
BA.4 Host Government	2.00	2.00	2.00	2.50	1.00
BA.5 Coordination Financial Needs	1.00	0.00	2.00	1.00	2.00

Core Function	CAR	Colombia	DRC	Nigeria	Yemen
CA.1.1 Basic Coordination	2.60	2.80	3.00	3.00	3.00
CA.2.1 Assessment Strategy	2.50	2.00	2.00	2.00	2.00
CA.3.1-3.3 Strategic Planning (HRP)	2.50	2.50	2.25	2.40	2.80
CA.4.1-4.3 Response Monitoring	2.63	2.57	2.00	2.71	2.75
CA.5.1 Preparedness (AA)	3.00	2.00	2.00	2.50	2.00
CA.6.1 Advocacy Strategy	2.20	3.00	2.50	2.25	3.00
CA.7.1 Accountability to Affected Populations (AAP)	3.00	3.00	3.00	2.50	2.67
CT.1.1 Cross-cutting Themes	2.40	2.75	2.67	2.20	2.75

* $p < 0.05$

with hubs, and Technical Working Groups that improved response quality by providing ad hoc technical support to partners. Additionally, survey respondents highlighted enablers of technical assistance from the Strategic Advisory Group and the presence of terms of reference for effective coordination. Alternatively, staff and partner informants in DRC highlighted barriers of high staff turnover, poor coordination at the sub-national level due to double-hatted staff, and inactive Strategic Advisory Groups and Technical Working Groups. Across all contexts, dedicated staff were low among Coordinators at the sub-national level with no Information Manager position. Overall, there was a lack of funded and involved coordination platform positions, along with high staff turnover, that affected stability and institutional memory.

Basic Assumption 2: Partners' Engagement assesses whether partners regularly contribute to key cluster Core Functions and participate in coordination meetings. Contexts scored between 1.5 (CAR, Colombia) and 2 (DRC, Nigeria, and Yemen). Barriers reported included: (1) inconsistent sharing and partner participation in Nigeria, (2) incorrect or irrelevant information reported in Nigeria and Yemen, and (3) partner inactivity and sharing of information that was irrelevant to humanitarian WASH coordination, according to 41% of partners in CAR and 18% in Colombia. Data sharing among partners was reported in monthly activity reports across all contexts, but there was no reported data on how partners coordinate meetings and streamline agendas.

Basic Assumption 3: Inter-Cluster Coordination Support describes whether the NCPs are well-supported by the Humanitarian Coordination Team and Inter-Cluster Coordination Group. Across contexts, varying levels of support provided by the Office for the Coordination of Humanitarian Affairs (OCHA) contributed to the barriers faced in meeting expectations regarding Basic Assumption 3. Yemen scored the highest at 2.50, followed by DRC (2.33), and CAR and Nigeria (2.00). No data were available for Colombia. Barriers included OCHA's: (1) lack of in-depth analysis, high turnover, poor organization, high response time (DRC), (2) own pace, which forced the Cluster to work in a hurry or poor conditions (CAR), and (3) inefficiency and poor inter-sector coordination (Nigeria). Enablers included occasional meetings of the Inter-Cluster Coordination Group (Yemen) and some Humanitarian Country Team support (CAR, DRC).

Basic Assumption 4: Host Government determines whether the host government facilitates or leads coordination mechanisms as needed. Apart from Yemen (1.00), all contexts scored 2.00 or higher for Basic Assumption 4. Nigeria scored the highest (2.50), and CAR, Colombia, and DRC scored 2.00. Enablers reported by staff and partners included understanding government structure (CAR, DRC, Nigeria) and good relationships with the government and WASH-related organizations (Nigeria). Reported barriers included low participation and engagement by the government and authorities (CAR, DRC), politics or conflicts of interest (Colombia, Nigeria), and complex and not fully functional government structures

(Yemen). Additionally, staff and partners in Yemen reported governmental restrictions hindering response effectiveness.

Basic Assumption 5: Coordination Financial Needs details if the Cluster Lead Agency provides and satisfies the financial needs essential for national and sub-national coordination. There was no data from any context indicating that more than 80% of financial needs reported in the funding budget for the national and sub-national levels were met for the coming six months. This is reflected in the inability of contexts to meet expectations of Basic Assumption 5. Yemen and DRC scored 2.00, and CAR and Nigeria scored 1.00. There was no data for Colombia. One staff member in Yemen reported that UNICEF usually approves funding for operational activities quickly at the national level as an enabler. Similarly, enablers stated by 50% of cluster staff in DRC included the provision of financial support by UNICEF for field visits or trainings. However, little to no funding was a barrier in CAR and Nigeria.

Core Action 1.1: Coordination and Information Management refers to the availability of capacity development, training resources, coordination meetings, and information sharing tools to support service delivery. Nearly all contexts met the expectations stipulated by Core Action 1.1. DRC, Nigeria, and Yemen scored 3.00, followed by Colombia and CAR (2.80 and 2.60). One common enabler reported by staff, partners, and survey participants in DRC, Nigeria, Yemen, and Colombia was regular capacity-building activities, such as webinars, technical trainings, and capacity-building meetings organized by the Cluster. Regarding Nigeria, these events focused on topics such as hygiene promotion, cholera response, and water quality testing. All contexts reported regular meeting minutes and information sharing via a sharing platform. Capacity-building activities and coordination meetings were inconsistently reported in CAR and Colombia.

Core Action 2.1: Assessment Strategy evaluates for the development of jointly implemented and integrated assessment strategies and standard WASH core assessment indicators to inform the Humanitarian Coordination Team's strategic decision-making. Assessment tools were critical across contexts in meeting expectations of Core Action 2.1. CAR scored the highest (2.50), while all other contexts scored 2.0. In CAR, these assessment tools are reviewed by partners. Across contexts, staff and partners reported the presence of needs assessment tools, including household surveys, rapid response monitoring, and Kobo Toolbox. However, barriers to using these tools include that they may be outdated (CAR), not related to WASH vulnerabilities (Colombia and Nigeria), or lacking in some capacity (DRC). No data were available on the integration of standard WASH core assessment

indicators except in Yemen, where one partner noted a lack of good tools for conducting assessments on the ground as a barrier.

For Core Action 3.1–3.3: Strategic Planning, which consists of a Humanitarian Response Plan, a WASH Strategy or Strategic Operational Framework, and the integration of inter-sectoral synergies into response plans, all contexts scored between 2.25 (DRC) and 2.80 (Yemen). In Yemen, enablers included yearly completion of the Humanitarian Needs Overview and Humanitarian Response Plan, as well as development of a Strategic Operational Framework, which is revised annually and shared with partners. Staff and partners also mentioned inter-sectoral and multi-cluster collaboration, such as involvement in the Cholera Task Force and mutual interventions between the WASH and Health Clusters as enablers. Results in DRC indicated the presence of a Humanitarian Needs Overview, Humanitarian Response Plan, and WASH standards. Barriers in DRC included a lack of organization in technical meetings and no updated WASH strategy, resulting in outdated guidelines. Reports of inter-sectoral collaboration were mixed in DRC.

All contexts scored 2.00 or higher for Core Action 4.1–4.3: Response Monitoring, defined as the presence of a response monitoring framework, field visits, quality assurance, and coordination performance monitoring systems. Enablers in Yemen (highest score, 2.75) included reporting monthly sharing of activities to the Cluster, regular response monitoring to inform prioritization and gap identification, field visits by Cluster staff, and regular Cluster Coordination Performance Monitoring assessments. In DRC, which scored the lowest (2.00), enablers included sharing their activities, the existence of an Information Management framework, and regular field visits, according to partners. Poor-quality data without details, reporting the 5 W matrix, and tools for M&E were barriers. Cluster Coordination Performance Monitoring assessments were conducted in DRC, but did not attain an adequate response rate.

Core Action 5: Preparedness refers to hazard identification, risk assessment and monitoring, contingency planning, and anticipatory action to build national capacity. CAR scored 3.00, while Colombia, DRC, and Yemen scored the lowest at 2.00. Staff and partners in CAR discussed how Minimum Preparedness Actions, Contingency Planning, and Advanced Preparedness Actions exist. Enablers for these are a collection of information on stock contingency for the inundation response, an ongoing capacity development plan, and capacity mapping. According to 33% of survey respondents in CAR, an Emergency Response Preparedness Approach exists for floods and is updated by Technical Working Groups. Information and capacity were barriers in Colombia and

Yemen, and time was reported to be an issue. No context besides Nigeria reported activities relating to hazard identification, risk assessment, and monitoring, having been undertaken by the NCP. The extent of contingency planning was variable.

Advocacy refers to the ability of NCPs to obtain resources and funding, as well as to influence key decision makers on identified collective humanitarian WASH issues. Core Action 6: Advocacy Strategy, comprising a joint strategic approach that supports robust advocacy and identifies issues, messages, and tactics to target key stakeholders, resulted in Colombia and Yemen scoring highest (3.00) and CAR scoring lowest (2.20). Enablers in Yemen were awareness by partners of the Joint Strategic Approach to Advocacy, advocacy by the Cluster about the gaps, and the organization of WASH donor meetings by the Cluster to deliver key advocacy messages. There was minimal data from Colombia, but staff and partners noted advocacy efforts by the Cluster to gain funding. In CAR, advocacy messages were not always developed in consultation with partners, and 40% of staff reported minimal interactions with donors outside of the Pooled Fund as barriers.

All contexts met or surpassed 2.50 for Core Action 7.1: Accountability to Affected Populations, which is mainstreamed throughout the Humanitarian Program Cycle and consists of an accountability to affected populations workshop and feedback mechanisms. CAR, Colombia, and DRC scored 3.00, followed by Yemen (2.67) and Nigeria (2.50). Enablers included the establishment of a Quality Assurance Initiative (CAR, Colombia, DRC, Yemen), workshops and training sessions on accountability to affected populations (CAR, DRC, Nigeria, Yemen), and consistent feedback mechanisms (CAR, Colombia). According to 41% of survey respondents in Nigeria, a strategy on accountability to affected populations exists, but some cluster staff noted barriers due to a lack of strategy, inactivity of the OCHA Technical Working Groups on accountability to affected populations, and challenges in conducting data analysis. Both Yemen and Nigeria reported difficulties obtaining feedback from and consulting affected populations.

Scores for Cross-Cutting Themes ranked as follows: Colombia and Yemen (2.75), DRC (2.67), CAR (2.40), and Nigeria (2.20). Enablers included the incorporation of gender and disability (CAR, Colombia, Nigeria), environmental protection plans (CAR, DRC, Nigeria), the role of cash-based interventions (Colombia, Yemen), localization efforts (Colombia, Nigeria), translation into the local language (Yemen), and engagement in the development nexus (CAR, Colombia, Yemen). Barriers in Nigeria included low confidence in funding due to corruption, little information on the engagement of local actors, and limited accessibility to some communities. There were

inconsistencies regarding the incorporation of cash-based interventions and no progression of the development nexus.

Discussion

To assess the value-add of different WASH coordination staffing levels on improved outcomes and outputs across humanitarian emergencies, this study triangulated 31 monthly activity reports from WASH coordination platform staff, KIIs with 21 coordination platform staff and 94 partners, and 475 online surveys in CAR, Colombia, DRC, Nigeria, and Yemen. Our findings confirmed that using the ToC to develop the Minimum Requirements was successful; there were successes and challenges in coordination in meeting ToC and response outcomes; staffing alone does not explain differences in coordination across humanitarian contexts; and a need for localization. We also describe limitations, recommendations, and future research.

Among the 376 survey respondents representing the four contexts included in our assessment of the impact of incorporating the ToC into the Minimum Requirements to achieve outcomes, Nigeria generally concurred with the highest percentages, whereas Yemen had the lowest percentages. There were relatively high percentages in meeting the following outcomes: making strategic decisions, strengthening stakeholders' relationships, and identifying gaps in response. In addition to the average scores of Basic Assumptions and Core Actions, as well as perceptions of Minimum Requirements, these findings demonstrate that further research on the ToC in developing Minimum Requirements for coordination is not indicated, as incorporation of the ToC into the Minimum Requirements has proven successful in helping contexts achieve various outcomes to improve their humanitarian WASH responses.

Staff and partners who participated in KIIs were overall in agreement regarding ToC outcomes, with some discrepancies in their perceptions. Their perceptions were primarily positive, which is consistent with findings from our previous evaluation [11]. Additionally, informants highlighted the importance of WASH national coordination platforms in helping partners provide a more effective, need-specific, and strategic response. Specifically, partners in specific contexts highlighted that coordination helps with obtaining funding and improving WASH response visibility (CAR, Colombia, DRC, Yemen), improving response quality (CAR, Colombia, DRC, Nigeria), managing organizational conflict (DRC, Nigeria), bringing innovative WASH approaches (Colombia, Nigeria), harmonizing response (DRC), answering critical challenges (Nigeria), working as a buffer between partners and government (Yemen), connecting local and international organizations (Yemen), and improving

time and cost-effectiveness (Yemen). Regarding impact on affected populations, partners also highlighted the importance of WASH coordination to provide better quality interventions (CAR, Colombia, DRC), improve accountability (CAR, Colombia, DRC, Nigeria), identify the highest needs (CAR, DRC), harmonize response and avoid duplication (Colombia), increase inclusion of at-risk populations (Nigeria), increase coverage area (Nigeria), provide more funding for WASH response (Nigeria), and provide faster humanitarian assistance (Yemen).

Our findings indicate challenges in completing M&E and evaluating program quality, possibly due to limited capacity, insufficient resources, or inadequate training, calling for a need to build local and national capacity through trainings and resource allocation. Respondents also reported difficulty obtaining funding. This could explain challenges in M&E and staffing. It is possible that funding is not only an outcome of the ToC but a determinant of achieving other outcomes. This is demonstrated by the Global Education Cluster, where funding incentivized and strengthened coordination activities across emergencies [19]. Coordination challenges due to minimal resources and funding have also been expressed by other humanitarian organizations [20].

Our Basic Assumption and Core Action findings suggest that although an important component of humanitarian WASH coordination, staffing levels insufficiently explained differences across humanitarian emergencies, thus illustrating the synergies at play in coordinating WASH responses. This is evident by the statistically significant difference in mean scores for Basic Assumption 1: Staffing and Structure between Yemen, perceived as a high-staffed coordination platform, and DRC, a perceived medium-staffed platform, but not CAR or Colombia, which are both perceived to be low-staffed. This could be due to possible changes in staffing structure, high turnover, or funding. Findings from the Global Logistics Cluster suggest it could also be due to the effectiveness of a cluster lead's leadership [20]. Even in the absence of staff, demonstrating quality leadership is key to enhancing partnerships and successfully mobilizing resources [19, 20]. Additionally, high staff turnover was a prevalent theme across all clusters [21].

Across contexts, participants highlighted a need for continued focus on localization and engagement of local communities, partners, and other sectors. This aligns with findings from the Health Cluster in Yemen [22], the Global Education Cluster [19], as well as broadly across clusters [21]. Despite relatively high scores for accountability to affected populations and cross-cutting themes, data was lacking in many contexts. Where data were available, KIIs revealed the marginalization of national organizations, challenges in engaging them, and that localization efforts are a work in progress, such as greater

participation and engagement from local NGOs. These efforts may depend on the ability to engage the host government, which was also a challenge or lacked data in many contexts. Furthermore, poor M&E may exacerbate this issue by preventing data collection and hindering feedback mechanisms regarding vulnerable populations as they relate to age, gender, disability, or HIV/AIDS status. Therefore, it is recommended that the Cluster continue to support and invest in monitoring systems to improve real-time tracking and effectively evaluate response quality.

This study faced several limitations, namely, scoring and limited data in certain contexts. Basic Assumptions and Core Actions received scores based on the availability of data. If there were only one piece of data available that was a negative mention, this would lead to a score of 1.00 due to the lack of other positive mentions, which suggests that the scores received by a humanitarian context may not adequately represent that context's current coordination efforts or the perceptions of those efforts by all study participants. Just because a country received a score of 0 did not indicate that a country was performing poorly, but rather that it lacked data. Although scores of 0 were not included in the final scoring of Basic Assumptions and Core Actions, it is important to recognize that the limited data surrounding certain Basic Assumptions and Core Actions may have led to scores that do not accurately reflect ongoing coordination within a country. The percentage of mentions provided by WASH NCP staff and partners on Basic Assumptions and Core Actions was calculated using the number of interviews rather than the number of unique informants. However, we do not believe this impacts our findings.

Furthermore, the paucity of survey respondents from Colombia hinders our understanding of Colombia's coordination. The study did not meet its goal of interviewing the national Coordinator and the Information Manager at least twice over the course of the study: the Coordinator in Colombia was only interviewed once, no Information Managers were interviewed in DRC and Yemen, and the Information Managers that were interviewed were only interviewed once, therefore missing a key perspective in coordination leadership. Missing data could ultimately have impacted cross-contextual saturation. Additionally, this slight paucity of data may have introduced voluntary response bias and selection bias into our study. Given that participation in our data collection methods was voluntary, the data we did collect may have overrepresented the perspectives of highly engaged respondents. Consequently, this could undermine the perspectives of non-respondents who may be less engaged with the GWC, participate less in coordination, or were unable to participate due to other commitments. Lastly, additional shortcomings in the representation of partners include

government (Colombia), donor (Colombia, DRC, Nigeria, Yemen), and other (Yemen). A strength of the study was that the research met its goal of interviewing 10–20 individuals per context.

While significant progress has been made in strategic WASH coordination, this research upholds several recommendations that are consistent with our other country reports and evaluations [23]. We recommend that the GWC continue to prioritize cluster staffing by filling long-term staffing structures at the sub-national and local levels with dedicated staff who are not double-hatted with other positions. Additionally, we recommend emphasizing evidence-based decision-making by standardizing relevant assessment and response monitoring tools and collective data frameworks to improve real-time response tracking while filling the gap between the humanitarian and development nexus, especially with reduced humanitarian funding. Furthermore, we recommend strengthening inter-cluster collaboration by sharing WASH data with other sectors and developing opportunities to deliver holistic, joint, and inter-sectoral responses. Lastly, we recommend strengthening engagement of and accountability to affected populations by establishing robust community feedback mechanisms and local capacity development initiatives, such as technical training and contingency planning, in which affected populations can participate in shared decision-making processes.

Recommendations for future research include further examining the factors associated with monitoring and evaluation, program quality evaluation, and the ability to obtain funding, in which advocacy can play a key role in supporting the latter. Coordination and research efforts should continuously aim to inclusively localize and concentrate on accountability to affected populations and community and partner engagement, ensuring that affected populations actively participate in local decision-making processes. Lastly, more research is needed to understand coordination efforts at the sub-national level.

Conclusion

Coordination in humanitarian WASH is complex and dynamic. Incorporation of the ToC into the Minimum Requirements works and serves as a practical framework for the GWC, showing that response outcomes were met and monitored by the GWC. This study revealed that staffing alone is insufficient to explain differences in coordination across humanitarian contexts. Humanitarian WASH coordination faces low funding, inadequate M&E, and a need for increased localization. In a time of constrained humanitarian funding, focusing on effective coordination is key to allowing all contexts to optimize response timeliness and efficiency.

Abbreviations

CAR	Central African Republic
DRC	Democratic Republic of the Congo
GWC	Global WASH Cluster
IASC	Inter-Agency Standing Committee
INGO	International Non-governmental Organization
KII	Key Informant Interview
M&E	Monitoring and Evaluation
NCP	National Coordination Platform
NNGO	National Non-governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
ToC	Theory of Change
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation, and Hygiene

Supplementary Information

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Supplementary Material 1

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Author contributions

DL, AS, and MR conceived and designed the study proposal. DN and CH collected data. DN, CH, and CC analyzed data and prepared the manuscript. All authors reviewed and approved the manuscript.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹School of Medicine, Tufts University, Boston, MA, USA

²Division of Global Health Equity, Department of Medicine, Brigham and Women's Hospital, Boston, MA, USA

³Department of Civil and Environmental Engineering, Tufts University, Medford, MA, USA

⁴Department of Global Health and Population, Harvard T.H. Chan School of Public Health, Boston, MA, USA

⁵Global WASH Cluster, Cluster Advocacy and Support Team, Office of Emergency Operations, UNICEF, Geneva, Switzerland

⁶Feinstein International Center, Friedman School of Nutrition, Tufts University, Boston, MA, USA

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