



RES'EAU
Humanitarian solution

Understanding the WASH Data and Decision-Making Environment

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Recommendations

This report highlights a critical paradox in the WASH sector: data is more abundant than ever, yet its influence on decision-making remains partial, fragmented, and often symbolic. While considerable investments have gone into data generation, much less attention has been paid to how data is used, shared, interpreted, and ultimately acted upon. The report shows that WASH decisions are frequently guided not by dashboards or reports, but by the instinct, technical expertise, and professional judgment of frontline staff and government officials. These actors operate within complex environments, often responding to urgent needs with limited resources. Their decisions are informed by experience, contextual knowledge, and informal networks; elements rarely captured by formal data systems.

Rather than viewing this as a shortcoming, it offers an underexplored opportunity of connecting data systems with the lived realities and professional capacities of WASH actors. A more effective WASH data ecosystem must be built on both reliable evidence and the knowledge embedded in practice. It must facilitate collaboration, enable feedback, support learning, and empower all actors to participate meaningfully in decision-making, whether they sit at the ministry, a field office, or a water utility.

The following 15 recommendations are drawn from the desk review and 25 Key Informant Interviews. They reflect the voices and priorities of practitioners across government, humanitarian and development coordination, technical operations, and data management. Together, they point toward a vision of a more inclusive, coherent, and insight-driven WASH data ecosystem.

Establish a common framework linking operational, programmatic, and strategic data

Create a unified frame that provides a logical pathway to connect field-level service delivery output data with programmatic outcomes and higher-level strategic goals. This will reduce fragmentation and help align existing service ladders and reporting systems. This will also help support efforts on greater indicator harmonisation.

Establish WASH Data Ecosystems that are inclusive of People (Individuals and Communities) as key data users

When designing and adapting the WASH Data Ecosystem, we strongly recommend to fully include People themselves as key data users and producers and thus define their roles, needs and feedback loops within the Data Ecosystem.

Leverage Investment in collaborative data cultures and local learning hubs

Support multi-actor collaboratives at local and national levels where utilities, NGOs, and a whole-of government can exchange data, reflect on trends, and co-produce solutions. These platforms strengthen accountability and local relevance.

Promote the establishment of clear Data Stewardship within the WASH Data Ecosystem.

Promote the establishment of Data Stewardship roles, principles and processes within the WASH Data Ecosystem to improve data governance and respond to clear reality of role-based decision-making. This can include the promotion of Data Curators within coordination systems. These actors could serve as trusted intermediaries, ensuring quality control, documentation, and contextual interpretation. Establishing Data Clearing Houses may offer an additional layer of service to WASH Roadmap members, centralising the vetting and validation of key data sets while advocating for the institutionalisation of curation roles

Invest in and promote the strengthening of national systems where Governments are Data Stewards as a key leverage point to close an existing WASH data gap at programmatic level.

Rather than conducting sensitive or redundant indicator harmonisation exercises, focus efforts on strengthening data flows at the programmatic level, where evidence to guide service quality, coverage, and equity is often weakest. This is an opportunity to present a clear business case for the investment in the strengthening of government ownership and data stewardship at national levels.

Empower local actors as users and interpreters of data

Local governments, NGOs, and frontline workers must be equipped not only to collect data but to analyse and act on it. This requires investment in data literacy, systems thinking, and empowerment to influence decisions.

Develop and maintain country-level WASH data ecosystem maps

Support the creation of regularly updated national ecosystem maps or registries that track key data sources, stakeholders, and flows and call for principled data stewardship. These tools enable continuity, contextual awareness, and better coordination.

Embed and sustain Knowledge Management (KM) roles within coordination structures

KM officers should be present in coordination teams with mandates to synthesise findings, facilitate learning, and support data use. Long-term financing is essential to maintain these functions.

Strengthen governance and long-term sustainability of digital platforms

Ensure data platforms have clear ownership, handover plans, and alignment with national systems. Platform design should not outpace the resources or capacity needed to sustain them.

Institutionalise feedback loops and structured reflection

Embed mechanisms such as after-action reviews, planning debriefs, and joint data interpretation sessions across the programme cycle. This ensures that data not only moves but also circulates and informs real-time learning.

Improve data circulation across levels and actors

Ensure that data collected at field or subnational level is returned in usable form to those who provided it. Enable two-way information flow across donors, implementers, and local institutions.

Create a digital space for WASH professionals to exchange, collaborate, and access support

Develop and maintain an inclusive digital platform where WASH professionals across institutions and geographies can connect, share experiences, request technical support, and access services such as data provision, mentoring, or peer learning. This space should serve not only as a knowledge hub but also as a network-building and service-oriented environment that strengthens sector-wide collaboration and decentralises access to expertise.

Move beyond situational assessments toward longitudinal insight

Complement one-off assessments with tools and systems that capture trends over time, such as registries, national monitoring platforms, and institutional memory mechanisms.

Support innovation carefully and inclusively

AI tools, community reporting apps, and real-time dashboards offer promise but must be matched by local capacity, transparency, and system integration. Avoid isolated pilots that collapse when short-term funding ends.

Engage with donors to both establish information needs as well as advocate for more outcome-focused data collection, curation and dissemination.

Developing a stronger understanding of donor information needs and use of data, advocating for outcome-focused reporting, funding for reflection and data curation, as well as sustainability of data platforms and initiatives will result in strengthening the WASH Data Ecosystem.

These recommendations are not simply technical. They are strategic and cultural. They call for changes in how the sector values local knowledge, approaches collaboration, and measures success. To build a truly effective WASH data ecosystem, we must close the loop between information and action, and between those who generate data and those who rely on it to improve lives.



Introduction

Five systematic reviews of evidence in the WASH sector conducted between 2015 and 2021 concluded that there is limited good-quality evidence on the effectiveness of WASH programmes and interventions in humanitarian crises¹. That is not to say however that little evidence exists, or that high-quality analysis is lacking. On the contrary, the desk review finds an extraordinary amount of data and analytical outputs are being produced, even if the potential to leverage the evidence is unexplored due to a highly siloed ecosystem.

While evidence-based decision-making in the Water, Sanitation, and Hygiene (WASH) sector has been evolving over the past decade, it has remained *complex due to the nature of WASH responses encompassing the individual, collective and system levels of intervention*. In both humanitarian emergencies and long-term development programs, practitioners and policymakers seek to ground WASH interventions in solid evidence to improve outcomes. However, what evidence is needed, gathered and used is widely fragmented. Due to the highly fragmented landscape, meta reviews, research initiatives as well as data-stakeholders highlight a sense of informational overwhelm as well as challenges to communicate about impact in the WASH sector and its contribution to higher level outcomes such as public health.

While this research has been conducted with the purpose of preparing a first overview of the WASH Data Ecosystem² to date, it is important to note that it is in no way an exhaustive review of all available data sources, platforms and processes. Based on the secondary and primary data review, Res'Eau proposes a first iteration of the WASH Data Ecosystem Map, which should serve as a point of departure for further discussion and remain a living document, a key asset for the WASH Roadmap Initiative and its members to consult and adjust based on shifting assumptions of the data value chain³.

This desk review is thus structured to examine the key elements of a Data Ecosystem and analyse available information on key parameters:

- Stakeholders
- Data Sources
- Data Flows and Platforms
- Data Governance

¹ [ELRHA](#), 2023

² A **data ecosystem** is the people, communities, and organizations that are stewarding data, creating things from it, deciding what to do based on it, influencing any of those activities, or are affected by any of those activities. Source: <https://theodi.org/insights/tools/data-ecosystem-mapping-tool/>

³ The **Data Value Chain** describes the process of data creation and use from first identifying a need for data to its final use and possible reuse. **The Data Value Chain has four major stages: collection, publication, uptake, and impact**. Source: <https://opendatawatch.com/reference/the-data-value-chain-executive-summary/>

- Findings of the desk review

To complement the desk review, the section two presents the findings from 25 Key Informant Interviews (KIs) conducted with stakeholders working across humanitarian and development settings at local, national, regional, and global levels. The purpose of this qualitative synthesis is to understand how data is used in practice, how it informs decisions, where it falls short, and what opportunities exist to strengthen evidence use across the sector.

The KIs add critical depth to the ecosystem analysis by surfacing the lived experiences of WASH professionals who work with data daily. Their insights reveal not only technical challenges but also institutional, political, and cultural dynamics that shape the relationship between data and decision-making. Importantly, the interviews highlight that while a wealth of data is routinely produced across the sector, it is rarely the primary driver of decisions. Instead, decision-making is often guided by contextual constraints, coordination dynamics, personal expertise, and institutional memory.

This section is structured around six key thematic areas that emerged from the interview analysis:

- A Disconnect Between Data Generation and Use – exploring the persistent gap between evidence production and action.
- Systemic Barriers and Role-Specific Dynamics – examining how structural issues and professional roles influence evidence uptake.
- The Realities of Decision-Making Contexts – unpacking how decisions are shaped by timelines, relationships, and strategic pressures.
- Constraint, Frustration and the Limits of Learning – highlighting how current practices limit reflexivity and undermine feedback loops.
- Emerging Opportunities and Practitioner-Led Solutions – surfacing practical ideas and innovations already underway in the sector.
- Findings and Recommendations from the Key Informant Interviews – summarising actionable recommendations that reflect practitioner priorities.

By anchoring the analysis in practitioner voices, this synthesis underscores that improving evidence use in WASH is not only a matter of technology or systems, but of culture, trust, and collaboration. Together with the desk review, this section contributes to a holistic understanding of the WASH Data Ecosystem and its potential for transformation.

01. Approach to Data Ecosystem Mapping

A data ecosystem refers to the people, communities, and organizations that manage data, generate insights from it, make decisions informed by it, influence related processes, or are impacted by its use (ODI 2019). To better understand what enables effective decision-making in the WASH sector, Res'eau set out to examine the core components of this ecosystem. These include the stakeholders responsible for data stewardship, the sources and flows through which data is generated and disseminated, the governance structures that shape or are shaped by data practices, and the decision-making processes that rely on this information.

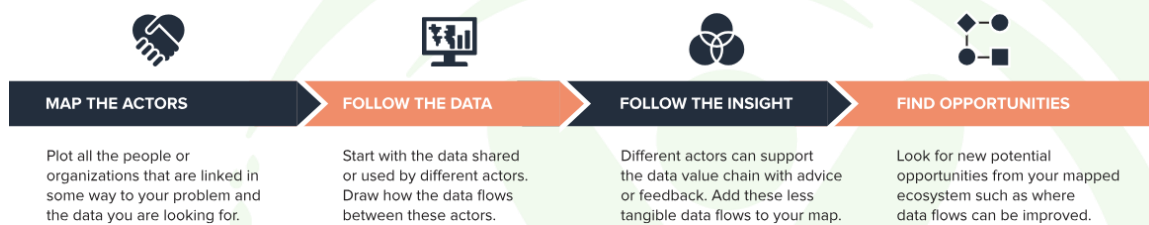


Figure 1: UNDP Data Ecosystem Mapping Process

To conduct the desk review, Res'eau employed the Data Entry and Exploration Platform (DEEP), using the key components of Data Landscape Mapping as the analytical framework. Documents including reports, presentations, assessments, research outputs, and available data structures were systematically tagged and analysed through in-depth qualitative methods. In total, 35 core documents were reviewed during this initial phase. All annotated excerpts, along with the broader DEEP project structure, are fully exportable and remain accessible to WASH Roadmap members for further exploration. The DEEP platform also enables ongoing updates, allowing for the integration of additional literature and resources as the initiative evolves.⁴

In addition to the desk review, a series of 25 Key Informant Interviews (KIIs) were conducted to deepen the understanding of the WASH data ecosystem and validate findings from the secondary data analysis. These interviews engaged a diverse set of stakeholders across global, regional, and national levels including representatives from government institutions, private sector, international NGOs (INGOs), and national NGOs (NNGOs). The KIIs served to capture lived experiences and practical perspectives on the use of data for decision-making, stakeholder coordination, governance constraints, and the challenges of data collection and interpretation in diverse operational contexts. Interviews were

⁴ The impact of lack of sustainable funding can be also exemplified on the use of the jointly governed analysis platform DEEP, which had to be suspended at the beginning of June due to the impact of funding cuts

conducted remotely and structured around a semi-guided format, allowing participants to describe their roles, decision-making processes, and data practices with flexibility. Insights from the KIs are used throughout this report to complement the desk-based findings, highlight context-specific examples, and reflect stakeholder realities in fragile, development, and humanitarian settings. The combination of SDR analysis and first-hand perspectives aims to create a more grounded and holistic understanding of the current state of the WASH data ecosystem and its evolution.

1. Stakeholders

The literature widely recognizes that the WASH system consists of a complex web of actors and factors that govern the interactions between them. Key stakeholders in policymaking can be categorised in *five broad domains: Government actors, Not-For-Profit actors, For-Profit actors, Donors and Investors and Academic/Research actors*.

It needs to be noted that a key actor that is highly influential on the success of programme and implementation and the longevity of WASH interventions⁵ and with it the mitigation of public health risks but not often formally considered in policy making are *people themselves – individuals and communities* who serve not only as consumers of WASH services, but are key in the adoption, monitoring and improvement of WASH service delivery and the identification, management and monitoring of public health risks. *They are also a key data-user*.

2. Government actors

Government actors, national and local authorities are key stakeholders. However, they are comprised of a variety of diverse actors, including Ministries, Public Agencies, Local and National Regulators and importantly Service Providers (Utilities). These actors need data to improve WASH service delivery, achieve WASH development goals, develop policies and standards, and manage resources. (Aquaya 2024). The complexity of the interaction of all these *stakeholders within Government* is increasingly recognized and has a direct impact on data flows, data governance and the use of data for decision-making as part of the WASH Data Ecosystem but *remains heavily under explored in the available literature and varies from country to country*.

DevAfrique⁶'s most recent assessment of the challenges of non-sewered sanitation data in Sub-Saharan Africa finds that both the range of regulatory models used to govern the sector in the region and the overlap of mandates lead to data gaps and gaps in evidence-based decision-making. This includes models where regulation is done by

⁵ Nelson S, Drabarek D, Jenkins A, et al. How community participation in water and sanitation interventions impacts human health, WASH infrastructure and service longevity in low- income and middle- income countries: a realist review. *BMJ Open* 2021;11:e053320. doi:10.1136/bmjopen-2021-053320

⁶ DevAfrique, *Data Systems For Non-Sewered Sanitation In Sub-Saharan Africa: Status, Challenges, And Recommendations*, 2025

agency (the predominant model), ministry oversight, contractual agreements, and self-regulation. In urban areas, the division of responsibilities, in addition to limited regulation, makes Non-Sewer Sanitation service provision complex. Another key finding shows that data generation at the utility and municipality levels is driven mainly by reporting obligations rather than internal performance and operations management. This focus on reporting rather than internal insights generation is partly due the lack of use and definition of Key Performance Indicators (KPIs) that align with Municipality/utilities decision needs beyond the prescribed regulatory obligations. Another reason is the poor data culture and limited data expertise across several utilities and municipalities. Other reasons for data generation gaps include insufficient funding, unclear Non-Sewer Sanitation mandates among utilities and municipalities and limited data system technologies

The need to engage with the diverse actors subsumed under Government is mostly seen through a process lens, calling for increased cross-sectoral coordination and collaboration between WASH sectors actors and government entities (e.g., between WASH, natural resources management and agriculture) and strengthening the connectedness between WASH and water resources planning at different levels within the sector. Identifying data needs at both the sub-national level (i.e., coverage, water supply asset management, maintenance, and financial management) and the national level (i.e., progress tracking, comparison, and prioritisation across the country's regions)⁷ is mentioned as a necessary step *but a major challenge within WASH Data Ecosystem remains in the "how"*.

The Humanitarian Innovation fund finds that a major issue leading to evidence gaps was coordination with local state actors and NGOs, coordination within the Global WASH Cluster (GWC) and coordination between GWC and other Clusters. Additionally, respondents mentioned funding issues, training, and preparation/prepositioning. ([Humanitarian Innovation Fund](#), 2013) as a critical aspect needed to increase. However, the unlocking of data-sharing, the building of trust, the inter-operability of approaches or simply the regular maintenance of data management cannot be fully addressed by technical capacity building ([Agenda for Change](#), 2020).

Figure 2 DevAfrique Urban Sanitation Service Provision Mandates

⁷ [Agenda for Change](#), 2020

Mandate Structure Type	Mandate for Sewered Sanitation (SS)	Mandate for Non-Sewered Sanitation (NSS)	Mandate for SS and NSS, Integrated or Split	Examples
Type 1	National Utility	National Utility	Integrated	Rwanda
Type 2	Subnational Utility	Subnational Utility	Integrated	Zambia, Tanzania, Kenya, Nigeria (Still evolving)
Type 3	National Utility	Local Government	Split	Uganda, Senegal, Malawi
Type 4	Local Government/ Municipality	Local Government/ Municipality	Integrated	Ghana, Mozambique, Ethiopia, South Africa

A review of country-level best practices by the Agenda for Change initiative notes that strong government commitment and leadership are very important in the initial stages of WASH response planning to identify priorities. Involvement of relevant authorities from the beginning of the process can help ensure that there is commitment to address the identified system weaknesses. Awareness and commitment to sustainable, universal WASH access and to systems strengthening activities can be increased through involvement in analysis and visioning workshops or processes ([Agenda for Change, 2020](#)). The report also notes however that the commitment of local and national government to sustainable, universal services and their readiness to engage is a key determining factor. *Currently, no tools or best practices have been developed that could help support these aspects of successful engagement and collaboration to improve data governance.*

A series of meta-evaluations and WASH data reports, consulted as part of the secondary review highlight an additional stakeholder where further engagement is needed: *people including individuals and communities*. This is particularly pertinent when it comes to decision-making at operational level where individuals and communities interact with service providers. *This linkage is key to inform decision-making as well as to sustain acceptance, adoption, use and utilization of WASH services overall and yet is only anecdotally explored in the context of evidence-based decision making at operational levels – it is mostly omitted at programmatic and strategic levels of decision-making.*

Where the role of individuals and communities is explored, it focuses more on consultation and one-way information sharing rather than the role as key stakeholders. ([ELRHA, 2023](#)). In reality, the lack of consideration of these key stakeholders, or to put it differently, poor customer orientation, and lack of accountability of service providers, can lead to users' unwillingness to pay water bills, water theft and vandalism of public assets. Establishing meaningful dialogue between customers and service providers, strengthening the accountability of service authorities to users, raising public awareness of customer rights,

and conducting citizen scorecard assessments have all been proposed as ways to expand the publicly available evidence base. These approaches aim to help service authorities plan and allocate resources more transparently ([Agenda for Change](#), 2020). As the Humanitarian Innovation Fund states, research gaps also continue to exist when it comes to understanding and mitigating weak community participation and the critical importance of designing appropriate hygiene promotion activities for each context ([Humanitarian Innovation Fund](#), 2013).

Regular and effective hygiene practices are an effective means of preventing infectious disease. Meta-analyses suggest that handwashing with soap can reduce the risk of diarrhoeal disease by 23–48% and reduce the risk of acute respiratory infectious by 21–23%. *However, we still do not know how best to go about promoting hygiene, or handwashing with soap, and sustainable hygiene practices in communities and especially among people affected by crises.* To elicit behaviour change, it is necessary to identify factors or determinants that influence behavioural outcomes. The identified behaviour change research priorities focus on identifying these factors generally and with reference to specific population groups affected by crises ([ELRHA](#), 2023).

International Non-Profit Actors

International agencies are expected to serve as 'custodians' for SDG global indicators. The role of custodian agencies is to lead the development of international standards and methodologies for collection and analysis of data related to their mandates, to establish mechanisms to facilitate the exchange of data between national and international levels, to maintain global databases and to support efforts to track and compare progress across countries. Monitoring the SDGs and the 2030 Agenda explicitly calls for increased investment in national systems for collection, analysis and use of data and progressive disaggregation of indicators to monitor inequalities between and within countries. International agencies are expected to actively support the development and strengthening of country level systems for monitoring and reporting, primarily to inform national level decision making but also to facilitate more effective tracking of progress at national, regional and global levels. ([World Health Organization](#), 2016)

NGOs and other external actors can contribute to systems strengthening in different ways, for example, through improving national sector planning and strategy, international advocacy and information sharing, or building the capacity of local actors; but any approach must include periodic reflection on the broader WASH system and consideration of how one change could lead to others.

NGOs can play a vital role in fostering collaboration and building partnerships that enhance the efficiency and coordination of WASH systems. They are also well positioned to help stakeholders develop a more holistic understanding of the system as a whole ([Agenda for Change](#), 2020). While the influence of NGOs within national systems is inherently limited, their ability to communicate evidence of best practices and share system-level insights can make a meaningful contribution, complementing their involvement in systems building and strengthening activities (*Ibid.*).

Role of Local Non-Profit Actors

Being embedded within national contexts, *national NGOs are often among the first to generate field-level data*—whether through needs assessments, project monitoring, or community consultations. They bring deep contextual knowledge that allows them to interpret and validate data in ways that are culturally and socially relevant, helping ensure that the information used to shape policy and programming reflects local realities (OECD, 2017).

Moreover, national NGOs are well positioned to support the localisation of data practices. Their participation in data *initiatives strengthens local ownership and contributes to more sustainable information systems*. However, their ability to fully engage is often constrained by unequal access to funding, digital tools, and technical capacity. OECD guidance stresses the importance of enabling partnerships where national actors—including NGOs—are not only data providers but also equal partners in data design, use, and decision-making (OECD, 2017).

Although national NGOs are rarely singled out in WASH systems literature as the lead data actors, their role in supporting government-led monitoring frameworks is increasingly visible. For instance, in the Agenda for Change report, several case studies highlight how national NGOs collaborate with decentralised authorities to co-develop indicators, validate data, and build capacity for district-level monitoring. In Nepal, national NGOs supported local authorities to integrate community voices into planning and reporting tools (Agenda for Change, 2020). Additionally, national NGOs often act as intermediaries, *bridging global data systems and local realities*. In contexts where international actors may face access restrictions, national NGOs provide essential information flows and ensure that community-level data is captured and shared in coordination platforms or pooled databases (OECD, 2017).

The role of Donors & Investors

Donors play a pivotal role in driving what data is collected and reported in WASH programs. Understanding their information requirements is essential for aligning projects with donor expectations and ensuring accountability. However, just as with Government actors, the donor partners are not a homogenous group. We can differentiate between institutional donors (governments, multilateral agencies, development banks) and private philanthropists/foundations, each with an own set of expectations and requirements.

- **Institutional donors** have formalized indicators and reporting systems that emphasize quantitative results (people served, facilities built), but increasingly they also seek evidence of quality (service levels, satisfaction) and sustainability (long-term functionality, policy impact).
- **Private funders**, while often more flexible, similarly value solid evidence of impact – whether through stories or data – and in some cases drive innovative monitoring approaches to capture outcomes.

*There is limited research specifically focused on the information needs of donors in the WASH sector, and no dedicated systematic reviews exist to date. Although no single academic study comprehensively captures these requirements, insights can be drawn from a combination of donor policy documents, independent evaluations, and sector reports. These sources highlight donors' efforts to *balance quantitative metrics with qualitative context*, the growing emphasis on *harmonized and outcome-focused reporting*, and the persistent challenges in translating reported information into meaningful improvements.*

Learning Alliances, Knowledge Hubs and Commercial Actors

Analysis of over 157,000 WASH-related documents published on ReliefWeb between 2015 and 2025 revealed the presence of several networks, knowledge collectives, hubs, and learning alliances that function as informal “data collectives” within the WASH sector.

Learning alliances, in particular, are designed to promote social learning and drive collective action. The Agenda for Change initiative highlights multiple examples from its member organizations. In South Ari, Ethiopia, for instance, a diverse group of stakeholders—including local government representatives—joined a platform aimed at improving the sustainability of rural water supply systems. Initially launched through a series of collaborative meetings to define the problem and set shared objectives, the group evolved into a space for joint solution development and documentation of lessons learned. IRC facilitated the process by providing information for group analysis and reflection. These learning alliances operate at multiple scales, with the facilitator playing a central role in linking actors across different levels and enabling the exchange of information and ideas ([Agenda for Change](#), 2020).

Table 1 : Type of Stakeholder and data usage

Stakeholder Group	Role in WASH Sector	Primary Information Needs (“need to know”)	Preferred Data Sources / Formats	Contextual Differences (Humanitarian vs Development)
Donors	Funders – Provide financial resources and strategic direction for WASH programs. Influence priorities and ensure accountability for results.	<ul style="list-style-type: none"> Needs and gaps Impact and outcomes Coordination status Financial performance and use of funds 	<ul style="list-style-type: none"> Dashboards, evaluations, situation reports 4Ws, financial tracking systems Infographics and summary briefs 	<ul style="list-style-type: none"> Humanitarian: Real-time updates, rapid assessments Development: Long-term trend data, SDG tracking
Governments (all levels)	Duty bearers and service authorities – Plan, implement, regulate, and monitor WASH services	<ul style="list-style-type: none"> Coverage and service performance Operational status of facilities Financial/resource gaps Equity and access 	<ul style="list-style-type: none"> National surveys (DHS, MICS), JMP, sector reviews Asset inventories, local MIS Administrative and planning datasets 	<ul style="list-style-type: none"> Humanitarian: Reliance on partners/clusters for data Development: Use own systems, focus on long-term goals
UN Agencies & Coordination Platforms	Coordinators, technical leaders, and standard-setters – support coordination and capacity building	<ul style="list-style-type: none"> Who-What-Where coverage Service quality and gaps Strategic needs and vulnerabilities Progress towards standards/targets 	<ul style="list-style-type: none"> Cluster reports, partner submissions, situation updates National statistics and surveys Global databases (e.g. JMP, SDGs) 	<ul style="list-style-type: none"> Humanitarian: Frequent coordination, rapid response focus Development: Periodic system analysis and accountability metrics
NGOs (International and Local)	Service providers and advocates – Implement field activities and reach vulnerable communities	<ul style="list-style-type: none"> Local needs and conditions Coverage and effectiveness of services Behavior change and hygiene outcomes 	<ul style="list-style-type: none"> Community assessments, KAP surveys Partner coordination platforms (4W/5W) Internal 	<ul style="list-style-type: none"> Humanitarian: Rapid assessments, frequent updates Development: Participatory and long-term data use

		<ul style="list-style-type: none"> • Coordination information 	<p>monitoring tools</p>	
Red Cross / Red Crescent Movement	Humanitarian responders and protection actors – Deliver emergency WASH and resilience programs	<ul style="list-style-type: none"> • Emergency needs and access • Health and protection risks • Local capacities and gaps • Coordination data 	<ul style="list-style-type: none"> • Field assessments, coordination reports • WASH monitoring templates, Sphere indicators 	<ul style="list-style-type: none"> • Humanitarian: Focus on life-saving interventions • Development: Increasing engagement in recovery/resilience
Private Sector	Service providers, innovators, suppliers – Deliver infrastructure and WASH services, often under contracts or market models	<ul style="list-style-type: none"> • Infrastructure functionality • Customer demand and affordability • Regulatory requirements • Market and investment data 	<ul style="list-style-type: none"> • Utility management systems, customer data • Business surveys, market analyses • National planning and regulation tools 	<ul style="list-style-type: none"> • Humanitarian: Engage through contracts, rapid logistics • Development: Long-term planning and service performance tracking
Communities and Users	End-users and rightsholders – Receive, monitor, and influence services; co-manage communal resources	<ul style="list-style-type: none"> • Access to water and sanitation • Service quality and reliability • Rights and accountability information • Hygiene knowledge and risk alerts 	<ul style="list-style-type: none"> • Community meetings, IEC materials, radio messaging • Visual/pictorial tools, mobile alerts • Feedback channels (e.g. hotlines) 	<ul style="list-style-type: none"> • Humanitarian: Critical for survival, top-down info flow • Development: Rights-based, participatory monitoring focus
Academia / Research Institutions	Evidence generators and evaluators – Conduct independent research, modeling, and impact analysis	<ul style="list-style-type: none"> • Program outcomes and impacts • Behavioral and environmental trends • Systems effectiveness and policy gaps 	<ul style="list-style-type: none"> • Field surveys, evaluations, experimental methods • Access to open datasets and national statistics 	<ul style="list-style-type: none"> • Humanitarian: Less visible, may support learning studies • Development: Often inform policy, innovation, and accountability

3. Data Sources

*In this section, we seek to understand the types of data the data ecosystem is comprised of initially through the analysis of available types of data on two of the major data platforms: ReliefWeb and HDX. We screened a total of 158,000 documents from both platforms between 2015 and 2025 labelled as WASH related. 72% of all documents are situational reports (40%) or news/press releases (32%), followed by Infographics (8%), assessments (6%) and analysis products (3%). Geo-spatial analysis and data make up only 1% of the reviewed data sources. This also highlights that *more analytical products such as evaluations, research studies are relatively rarely included in the above assessed platforms.* These types of evidence are normally included in peer-reviewed-scientific publications and accessible through academic and research stakeholders.*

The main authoring entities of Situation Reports are UN actors, which suggests a continued need for strategic leverage, advocacy and global visibility. Clusters and coordination mechanisms (e.g. WASH Cluster, HCTs) play an essential brokerage role, often appearing as co-authors or curators of multi-agency products. Unsurprisingly, NGOs are the main authoring entities of field-level data particularly infographics and needs assessments—underscoring their proximity to affected populations. The Red Cross / Red Crescent Movement maintains a robust but distinct presence, with a heavy focus on protection, appeals, and direct implementation data. Donors and IFIs contribute mostly financial and strategic documentation but remain peripheral in operational data generation, which may be a missed opportunity.

A significant gap in academic contributions was noted, suggesting underutilized potential for evidence-based decision-making and impact analysis. *Government contributions are fragmented and inconsistent across countries*, despite their central role in long-term service delivery and sustainability.

While frequent situational updates are critical in rapidly changing humanitarian crises, *in WASH, decision-making is often driven by rapid assessments and real-time monitoring data collected during crises.* Typical evidence includes needs assessment reports addressing (e.g. number of people without safe water or sanitation), epidemiological data (e.g. disease incidence such as cholera or diarrhoea rates included in situational updates), and field observations. A recent review which found that most studies of WASH in crises have been observational (case studies type) rather than experimental, reflecting the difficulty of conducting high-quality research during emergencies. The findings of this study concluded there is a limitation in the quantity and quality of scientific information available on the impact of the delivery of WASH interventions among people affected by humanitarian crises.⁸

⁸ Alareqi MM, Alshoaibi LH, Liu Y, Dhital S, Zhang B. The Role of Water, Sanitation and Hygiene (WaSH) Interventions on Health and Behavioral Outcomes during Humanitarian Crisis: A Systematic Review and Meta-Analysis. Iran J Public Health. 2024 Feb;53(2):335-347

The focus on situational updates and assessments, providing only a snapshot in time, is somewhat reflective of one of the main challenges of the WASH sector: across the reviewed literature, there is *strong agreement that the absence of a recognized, standardised analytical framework to describe and measure WASH higher level outcomes* such as e.g. public health, their linkages to lower-level WASH outcomes such as e.g. coverage with WASH services, WASH outputs such as e.g. water availability, the linkages to WASH service chains and service ladders is a major challenge and has become a bottleneck in the decision-making process for the sector⁹. It is one of the underlying reasons for the fragmentation of the WASH Data Ecosystem.

Already in 2016, the WHO JMP Strategy pointed out that the key challenge for the next five years will be to support the progressive harmonisation of approaches to monitoring these new dimensions of WASH access and service levels. The JMP 2021-2025 strategy goes even further making the long-term measure of success of the JIPS the progressive harmonisation and standardization of indicator definitions used to monitor accessibility, availability and quality of WASH services and the development of new indicators and methods which response to emerging challenges. ([World Health Organization 2021](#)) Stating clearly that there is a risk that the new demands of SDG monitoring could overwhelm the capacity of national statistical offices and sector partners without putting in place ways to streamline monitoring approaches and to minimize the burden of data collection at the national level. ([World Health Organization, 2016](#)).

In the absence of globally established standards that define the relationships between inputs, outputs, and outcomes of WASH interventions, it remains difficult to develop a shared understanding of the WASH data ecosystem or to take a strategic approach to data-driven decision-making. These elements are not only interconnected within the analytical framework but also align with different levels of decision-making. Strategic decisions typically focus on higher-level outcomes at national or global scales. Programmatic decisions relate to intermediate outcomes at national, sub-national, or regional levels. Operational decisions are primarily concerned with outputs at the local or sub-national level. Accordingly, this report examines data sources that inform decision-making at each of these three levels.

Data Sources at Strategic Level

⁹ As useful as the focus on specific problem areas is, much less attention has been paid to examining the interconnectedness between them. Some researchers have stressed the importance of having a shared understanding of concurrent activities between problem areas (for example, Azmat et al. 2019; Roy et al. 2012). However, they have not provided any guidelines on how to do so. The picture that emerges is that the literature on humanitarian problem-solving activities is fragmented with the focus on individual problem areas. [Journal of International Humanitarian Action](#), 2021, JMP Strategy 2021-2025, Tufts University WASH Severity Classification Review

At global levels, several initiatives aim to ensure that data is available for strategic decision making, including some of the longest running survey programs such as the Demographic Health Surveys, Multi-Indicator-Cluster Surveys, the Joint Monitoring Program and others that serve as baselines informing the development of global indices and decision-support tools.

1. The DHS, MICS, JMP are well known data sources and core to the WASH sector. The JMP national, regional and global estimates of progress on WASH are used in the UN Secretary General's SDG Progress Reports as well as used in a wide range of global databases, including the World Development Indicators and the SDG 6 data portal. The JMP routinely provides data and analysis to international organisations to inform strategies and resource allocation and regularly contributes to academic studies. ([World Health Organization](#), 2021). *At the core of all survey programs is the assessment of public health outcomes including morbidity and mortality and progress towards achieving access coverage.*
2. One of the most recent initiatives of the [Global WASH Cluster](#) was the launch of the [WASH Insecurity Analysis \(WIA\)](#). The WIA is a sector-wide analytical framework designed to inform evidence-based decision-making across the humanitarian–development continuum. It is rooted in the human right to water and sanitation and recognizes the critical role of WASH services in protecting public health. *The WIA provides a common methodology for understanding WASH needs and risks by assessing WASH service levels, exposure to hazards, and WASH-related vulnerabilities. The analysis itself is based on the above-mentioned core datasets (MICS, DHS, SMART etc.)*
3. Preceding the WIA, the WASH Severity Classification system (WSC) was a first attempt, and now abandoned, to inform decision making at strategic level. The WSC classified the severity and drivers of WASH needs based on established standards – however without the provision of agreed-upon thresholds. The WSC established the basis of a severity score by combining quantitative data (including the WASH Insecurity Score (WIS) and qualitative data (including expert judgment and consensus). ([Tufts University, United Nations Children's Fund](#), WASH 2021)
4. A key reference source for global level strategic decision-making has been the emergent [Multi-Sector-Needs Assessment program of REACH/IMPACT Initiatives](#) – with a key focus on multi-sectoral needs and a comparative approach across population groups. The annual, national level surveys cover all crisis-affected areas and affected populations. The MSNAs have become a key baseline resource used in the above-mentioned indices/composite measures.
5. While not a key data source, a key reference source for Humanitarian actors to consult on established standards and past lessons as evidence are the Sphere standards, which codify evidence-informed minimums (e.g. at least 15 litres of water per person per day in emergencies) and thus guide strategic level global decisions.

Data Sources at Programmatic Level

Finding and quantifying data sources at programmatic level is challenging, and that is due to the focus of this data and its producers: mostly aiming at system level, government

actors to monitor, analyse and inform WASH systems strengthening. Without conceptual agreement on key data descriptors of WASH systems monitoring at different administrative levels, the field is wide open for a variety of interpretation on what data is produced and used to support programmatic decisions.

For instance, a government may use census data and water point maps to plan new infrastructure or draw on a study showing the health benefits of sanitation to justify a national campaign. Over the past 10 years, many countries have invested in WASH monitoring systems and open data platforms, generating large datasets on service coverage and functionality. In theory, this provides a strong empirical basis for planning and budgeting decisions. In practice it results in uncertainty about types of required data, formats and quality metrics.

- 1.1.1. Global assessments like **WHO's GLAAS** reports compile evidence on financing, policies, and systems to inform decision-making among development partners (who.int). GLAAS, focuses on monitoring the following components of WASH systems: governance (including legislation, policies, plans and regulatory frameworks), institutional arrangements, financing streams and financial systems, monitoring systems for informed assessments and reviews, and human resources and capacity development. Ultimately, WHO through GLAAS would like to draw upon existing, reliable data sources to monitor and analyse WASH systems; however, reliable data sources do not exist across all countries, and at this time there is still a need for data collection through the GLAAS country survey and other activities. Until data can be harvested from existing, reliable sources, GLAAS will continue to collect data from countries and external support agencies. (World Health Organization, 2023)
- 1.1.2. The **WASH accounts production tool (WAPT) aids analyses of WASH financial data during the development of WASH accounts** – it is a critical tool for WASH accounts development. WHO will continue to improve the WAPT to meet the growing demands and requirements of users and national governments. Work will also focus on improving the integration of data from the WAPT into the GLAAS data portal, making WASH financial data more easily accessible. (World Health Organization, 2023)
- 1.1.3. **Academic research and impact evaluations** also play a prominent role to informing programmatic decision, for example, cluster randomized trials (such as the WASH Benefits studies) were conducted to test the health impacts of water, sanitation, and hygiene interventions, adding to the evidence base used by policymakers (washmatters.wateraid.org)

In development contexts, there is a richer mix of evidence types: quantitative coverage data, qualitative studies on user behaviour, cost-benefit analyses, and rigorous research findings, all of which can inform policy and practice. Decisions are often made with longer time horizons, allowing integration of evidence about sustainability and long-term health outcomes, not just immediate needs.

The humanitarian context prioritizes actionable evidence that can guide life-saving interventions in the short term, whereas the development context can leverage more comprehensive evidence for long-term planning. Humanitarian WASH decisions might hinge on *situational evidence* (“How many people need water today and where?”), while development decisions incorporate *systematic evidence* (“What technologies are most sustainable for this community, based on studies and data?”). Both contexts value evidence, but they differ in the types and timeliness of information used. Notably, humanitarian actors often must act on limited or imperfect evidence due to urgency, and so rely on standards, precedent, and rapid assessments as proxies for evidence ([researchgate.net](https://www.researchgate.net))

Development actors, with more time and stable settings, can afford to wait for detailed surveys or to pilot interventions and evaluate results before scaling up. In both cases, however, there is recognition that using the best available evidence is crucial to effectiveness. Over the past decade, the two fields have also started to converge somewhat – humanitarian programs are increasingly undertaking more robust evaluations, and development programs are adopting more iterative, adaptive management (a practice common in emergencies) to use evidence in real time. *Nonetheless, the types of evidence in each context reflect their operational realities: humanitarian evidence is often immediate, needs-driven, and operational, while development evidence is broader, research-driven, and strategic.*

Data Sources at Operational Level

Data sources at the operational level are extensive and varied – while a thorough review of the data sources itself across contexts is outside of the scope of the desk review, we seek to understand any key differences in the availability of data across WASH domains/components at a higher level.

Water Supply

In water supply, both humanitarian and development operations place heavy emphasis on evidence to ensure access to safe water, but the focus of the evidence can differ. *Humanitarian water supply interventions* use evidence primarily *to meet minimum quantity and quality standards essential for survival*. For example, field teams measure litres of water delivered per person and test for microbiological contamination; these data points directly inform if emergency water trucking or treatment (ec.europa.eu). Real-time evidence like water point functionality rates, queue times, or incidence of waterborne disease is monitored closely to adapt interventions quickly. Over the last decade, *humanitarian actors have increasingly utilized mobile data collection and dashboard systems* to track these indicators in real time, reflecting a trend toward more data-driven water supply response. However, the evidence used is *often short-term – e.g., “How many wells are dry this week?” or “Is the chlorine residual adequate today?”* – aimed at immediate service delivery and outbreak prevention.

In *development programs* for water supply, evidence use tends to be *oriented toward long-term service delivery and sustainability*. There is a notable trend toward systems monitoring: *governments and partners gather data on water service levels, functionality of water points, and equity of access*, to inform planning and investments. For instance, many countries have conducted water point mapping surveys and feed this data into decision-making about where to invest in new infrastructure or maintenance (waterpointdata.org). Over the past 10 years, tools like water safety plans (WSPs) have been widely adopted – these are evidence-based risk management plans for water systems, and their uptake was driven by evidence that consistently managing water quality from source to tap reduces contamination risks. Moreover, cost-effectiveness evidence has influenced choices of technology (e.g., evidence on lifecycle costs might steer a government toward boreholes with handpumps vs. piped schemes in certain rural areas). A key trend has been *increased data transparency and sharing*: initiatives such as the Water Point Data Exchange (WPdx) and WHO/UNICEF Joint Monitoring Programme's open databases provide an evidence platform that did not exist at this scale a decade ago (waterpointdata.org).

This has enabled comparative analysis and peer learning across countries. In summary, for water supply, *humanitarian decisions rely on evidence for short-term adequacy and safety*, whereas *development decisions use evidence for strategic expansion and sustainability of services*. The common pattern is that *water quality and quantity metrics* are fundamental evidence in both cases, but the timeframe and purpose (survival vs. service reliability) differ (cswire.com)

Sanitation

For sanitation, evidence use has evolved to *emphasize not just infrastructure outputs (toilets built) but outcomes* like usage, behaviour change, and public health impact. In humanitarian situations, providing sanitation (e.g. emergency latrines or sewage management in camps) is guided by evidence from rapid assessments (such as the number of people per toilet, or observations of open defecation areas).

Humanitarian sanitation programs frequently use evidence from community feedback and protection assessments. For example, data gathered for women's safety risks when using communal toilets at night has prompted changes in placement and lighting of facilities¹⁰. In the past decade, there has been *greater attention to such qualitative evidence* (user preferences, cultural practices) when designing emergency sanitation, recognizing that installing latrines is not effective if people do not use them. *Technical guidelines have also been updated based on evidence*; for instance, experiences from cholera outbreaks have provided evidence on how to design isolation toilets or manage waste safely, influencing global humanitarian WASH manuals. *A trend in protracted crises and the humanitarian-development nexus is to move from temporary latrines towards*

¹⁰ evaluationreports.unicef.org

more durable, context-appropriate solutions (like semi-permanent toilets or connection to existing sewer networks) using evidence from longer-term monitoring. Nonetheless, *rigorous health impact evidence (e.g., how much emergency latrines reduce diarrhea) remains limited in humanitarian settings so decisions often rely on general public health evidence* that safe waste disposal prevents disease, combined with Sphere standards (e.g., maximum 20 people per latrine as an evidence-informed standard)¹¹.

In the *development context*, sanitation interventions have been strongly *shaped by evidence on behaviour change and community uptake*. A common pattern the past 10 years is the *widespread implementation of Community-Led Total Sanitation (CLTS) and similar approaches*, driven by evidence (from pilot programs and case studies) that mobilizing communities to end open defecation can lead to rapid increases in latrine usage. *Many governments adopted CLTS in their rural sanitation policies after early evidence from countries* like Bangladesh and India showed significant reductions in open defecation through these methods. At the same time, *researchers have been evaluating the health impacts of improved sanitation at scale*. Major studies and meta-analyses (e.g., systematic reviews and trials around 2018) have yielded nuanced evidence: for instance, one multi-country trial found that improving sanitation alone did not always translate into expected child health gains (such as reduced stunting), especially if coverage or usage remained low (washmatters.wateraid.org).

These findings have sparked adjustments in practice, highlighting that *coverage and quality of sanitation must be very high to achieve health outcomes*, and that sanitation efforts should be integrated with hygiene and possibly other sectors to maximize impact. Consequently, a recent trend is a *more holistic "WASH systems" approach* in development: using evidence to ensure not just toilet construction, but continual use, maintenance, and safe management of waste (faecal sludge treatment), often tracked by new indicators (e.g., proportion of villages sustaining "open defecation free" status after several years, which comes from post-intervention evaluations). In urban sanitation, evidence from the past decade on the effectiveness of decentralized solutions (like faecal sludge management plants or container-based sanitation) in low-income areas has influenced policies toward "Citywide Inclusive Sanitation," ensuring that planning is based on data about all segments of the population. To sum up, *development sanitation programs increasingly use evidence on user behaviour, coverage, and health impacts to guide strategies*, whereas *humanitarian programs use rapid evidence to ensure immediate safe sanitation access*, with both converging on the principle that *user-centred evidence* (what people need and will use) is crucial for success.

Hygiene Promotion

¹¹ pmc.ncbi.nlm.nih.gov

Hygiene promotion (especially handwashing and related behaviours) is an area where evidence-based decision-making has been vital in both contexts, and there are notable commonalities and differences in approaches. In *humanitarian emergencies*, hygiene promotion campaigns (like distribution of soap and handwashing messaging) *are informed by evidence such as disease trends and cultural practices*. For example, if an outbreak of hepatitis E or cholera is detected, evidence linking these diseases to poor hygiene prompts an immediate scale-up of hygiene promotion as a preventive measure. *Field assessments might gather evidence on current hygiene knowledge and practice* (e.g., do people have soap? Do they understand handwashing?) to tailor messaging. A pattern in the last decade is the *rise of evidence-based hygiene kits and messages*. Humanitarian actors use findings from KAP (Knowledge, Attitudes, Practices) surveys and anthropological studies to decide what items to include in kits (such as menstrual hygiene materials for women, based on evidence of need) and to refine their communication strategies. For instance, evidence from focus groups might reveal that certain communities prefer tippy-tap handwashing stations, leading agencies to implement those. Overall, however, the evidence in crises is often formative and immediate, identifying key barriers to hygiene in a specific emergency (water shortage, lack of soap, beliefs), and programs are adjusted accordingly. The importance of *hygiene was further underscored by evidence during the COVID-19 pandemic* (2020–2021), when data showed hand hygiene as a critical intervention; this *led to unprecedented emphasis on installing handwashing facilities* in humanitarian settings worldwide, backed by global evidence on virus transmission reduction through handwashing.

In development settings, hygiene promotion has been increasingly shaped by behavioral evidence and research in public health. Over the past 10 years, multiple studies, including randomized trials and observational research, have identified which approaches effectively change hygiene behaviors. Evidence has shown, for example, that *knowledge messages often are not sufficient*, but interventions using *emotional motivators or social norm cues can significantly boost handwashing rates*. This has led to programs adopting evidence-based methodologies (such as habit formation techniques or school-based hygiene clubs backed by research outcomes). A noteworthy trend is the integration of hygiene into other sectors' programs, driven by evidence of synergies. For instance, studies demonstrated that combining hygiene promotion with antenatal care visits could improve newborn health outcomes, which influenced policies in countries like Ethiopia to integrate handwashing education into maternal health services (globalhandwashing.org). Similarly, *global advocacy for hygiene's importance paid off* when evidence was used to *successfully lobby for a dedicated hygiene indicator in the Sustainable Development Goals (SDGs)*; hygiene (handwashing with soap) was explicitly included in SDG targets due to evidence demonstrating its fundamental role in health (globalhandwashing.org)

Both humanitarian and development actors share a pattern of valuing *formative research* – understanding the determinants of behaviour in context, to design better hygiene programs (globalhandwashing.org). *The difference* lies in scale and continuity: *development programs often have the luxury of conducting longitudinal* studies on

behavior change or running pilot projects (like testing different handwashing promotion methods and using evidence to choose the best), while *humanitarian programs must implement based on rapid formative assessments* and general prior evidence due to the urgent need. Despite these differences, *a common trend is the increasing professionalization of hygiene promotion* – using evidence-based frameworks (for example, the Risks, Attitudes, Norms, Abilities, and Self-regulation (RANAS) model from behavioral science) in both refugee camps and rural villages to design interventions that are proven to work. Hygiene promotion is now widely seen as an intervention that must be guided by evidence of local practices and scientific knowledge of behavior change, rather than by assumptions.

Cross-Cutting Patterns

Across all WASH elements some patterns in evidence use stand out. One is the *growing emphasis on data and monitoring in both humanitarian and development spheres*. Both contexts have invested in better monitoring systems. Humanitarian WASH clusters now often deploy real-time dashboards to track indicators during a response, and development WASH programs strengthen national monitoring to inform sector progress (washmatters.wateraid.org).

Another pattern is the recognition of *user-centred evidence*. Whether in a rapid crisis assessment or a development baseline study, understanding the needs and preferences of communities (through surveys, interviews, participatory methods) has become central to designing effective WASH solutions. *A key difference remains in the time scale and rigor of evidence*. *Development* context has seen more *rigorous impact evaluations* (providing high-quality evidence on what works, albeit slowly), whereas the *humanitarian context often relies on evidence from experience and immediate data* (lower “rigor” but high practical relevance). Despite this, there is a trend of convergence, with the humanitarian sector calling for more rigorous evidence to justify interventions and the development sector adopting more adaptive management (learning and changing course mid-project as evidence comes in, a practice honed in humanitarian work). Finally, both contexts grapple with *contradictions in evidence*. For example, one study may suggest a certain water filter works best, while field feedback may say communities prefer another solution, requiring decision-makers to balance multiple evidence sources.

In summary, *humanitarian WASH evidence tends to be practical, needs-focused, and rapid, emphasizing life-saving outcomes* (e.g. reducing disease and meeting basic needs). In *development WASH programs, there is typically a broader and more systematic evidence* base to draw from. Decisions are informed by national surveys and statistics (for example, household access rates to improved water and sanitation from DHS or JMP data), routine monitoring systems, academic research, and program evaluations. Evidence is understood broadly to include formal research findings, administrative data, community feedback, and evaluation results (washmatters.wateraid.org)

4. Data Platforms and Flows

The WASH data ecosystem is rich in platforms and tools yet fragmented in practice. A review of 15 major platforms highlights significant diversity in scope, access, and use cases, but also major challenges in harmonization, integration, and practical utility. Critically, a shared analytical framework to link high-level outcomes, such as public health, to service coverage, infrastructure, and delivery systems as outlined previously could further help not only harmonisation and integration, enhance the analytical value of interoperable data as well as guide strategic decisions and optimize future investments against a contracting resources space.

Scope

WASH data platforms vary in scope from *real-time field monitoring tools* (e.g. mWater, Akvo, KoboToolbox) to *high-level strategic indices* (e.g. JMP, GLAAS, WASH Needs Index). While some platforms *specialize in infrastructure* (e.g. WPdx) or *risk* (e.g. WRI Aqueduct), others focus on sector *governance or humanitarian response coordination*. However, these platforms often operate in silos, limiting their collective ability to inform policy, funding, and programming decisions holistically.

Complementarity vs. Overlap

Many platforms address different aspects of *WASH data and can complement each other* if used together. For example, JMP outcome data on service coverage and WPdx infrastructure data fill different needs but together give a more complete picture. There is also some overlap – for instance, *multiple survey tools (mWater, Akvo) serve similar purposes*, and several global portals focus on water supply coverage. *Aligning tools* by their function and measurement focus can *reduce duplication*.

Data Integration

There are *efforts to integrate* data flows across platforms. The WPdx platform aggregates water point information from tools like mWater and Akvo into a unified global dataset. Similarly, composite indices such as USAID's WASH Needs Index draw on datasets like WHO/UNICEF JMP to evaluate country needs. At the UN level, the SDG6 Data Portal combines outputs from JMP, GLAAS, and other databases. These integrations help reduce fragmentation and improve accessibility.

Gaps in Thematic Coverage

Most platforms *heavily focus on water* supply and basic sanitation. *Fewer global platforms provide open data on sanitation* infrastructure or faecal sludge management (beyond national surveys or project-level tools). This indicates a gap in readily accessible global data for certain WASH sub-sectors.

Stakeholder Use

Different platforms serve different primary users, but there is overlap. Governments appear as key users of many systems, while NGOs and donors frequently use both global indices and field-level data tools. There's a strong trend toward open accessibility. However,

awareness, data literacy, and interoperability remain challenges in making full use of these platforms across the sector.

Access and Sustainability

Many of the *data resources include donor-hosted data platforms*, including individual analysis projects as well as data-driven decision-support tools that provide access to key data on WASH specific thematic.

This study coincided with a major non-anticipated shift in the WASH Data Landscape: the cut of funding by one of the system's major donors: USAID. Not only was funding cut for these projects but many of the *data portals appear to have been taken offline or inaccessible* at the time of the desk review (February-March 2025). One of the most reliable and frequently updated data sources is the Demographic Health Survey programme the termination of which was announced in February 2025¹². The fallout *impact of a disruption of the production of the DHS will result in serious data gaps, challenges to understand and analyse historic data* in context and thus monitor progress as well as impact the developed indices and composite measures that rely on the survey programme as its baseline in computing water insecurity or severity of WASH needs.

The Institute for Tropical Medicine Antwerp summarises the impact of the discontinuation of the DHS programme as follows: *"The historical continuity of population health data is threatened. This data gap would prevent identification of critical trends in fertility, mortality, health outcomes and health behaviours - both within countries (across regions and urban/rural divides) and between countries. Without such data, we cannot effectively analyze how major forces like climate change, urbanization, and healthcare access affect health."*¹³

One of the now inaccessible platforms is the **WASH Needs Platform**. The WASH Needs Index helped USAID and global partners prioritize investments for maximum impact by analyzing drinking water and sanitation needs, water insecurity, and effects on women and girls' well-being and opportunities. Developed using the latest data on eight criteria from the Water for the World Act and aligned with global definitions for the Sustainable Development Goals, it supported USAID's objectives and transparency. The interactive dashboard allowed users to explore the data and scores used in decision-making. While the Needs Index is crucial for identifying Water for the World High Priority Countries, it was one of several factors in the designation process of High-Priority Countries in line with the U.S. Global Water Strategy – *this resource has since been removed*.

¹² See <https://www.itg.be/en/health-stories/articles/call-to-restore-dhs-program-funding>; and <https://www.brookings.edu/articles/an-ode-to-the-demographic-and-health-survey-program/#:~:text=Although%20the%20DHS%20was%20terminated,middle%2Dincome%20countries%20where%20these>

¹³ <https://www.itg.be/en/health-stories/articles/call-to-restore-dhs-program-funding>

Additional platforms include: *SERVIR is a joint initiative of NASA and USAID to use satellite data and geospatial technologies to strengthen weather and climate resilience, agriculture and food security, water security, ecosystem and carbon management, and air quality and health.* The service catalogue includes numerous local, national, and global geospatial products.

The long-term effects of the disruptions of these key data sources are currently hard to quantify. What becomes clear however is that considerations of data governance, ensuring access and sustainability of these platforms needs to be urgently strategically considered as key factors shaping a resilient WASH Data Ecosystem.

While we did not examine all possibly affected platforms, a thorough stock-taking is recommended to avoid losing key information and knowledge for the WASH sector, and going hand-in-hand with it, the identification of pathways for integration. Some of the key elements to consider when developing pathways for integration will have to include:

- **Harmonizing Indicators Across Platforms**: Promoting alignment of outcome and service indicators between platforms (e.g. between JMP, WPdx, mWater, Akvo) to allow for inter-platform comparisons and aggregation.
- **Link Outcome Surveys to Operational Data**: Connecting household-level surveys (e.g. DHS, MICS) to service-level performance data (e.g. from mWater or national MIS) to track real-world service delivery effectiveness.
- **Embedding Service Chains and Ladders in Data Models**: Incorporate structured service ladders and delivery chains (e.g. functionality tiers, maintenance cycles) into data taxonomies to support system-wide diagnostics.
- **Encourage Interoperability and API Standards**: Invest in open APIs, metadata standards, and data exchange protocols that allow platforms to connect and share data seamlessly.

Table 2 : WASH data platforms and Data exchange

PLATFORM	THEMATIC FOCUS	DATA TYPES	GEOGRAPHIC SCALE	UPDATE FREQUENCY	INTERACTIVITY & ACCESS	STAKEHOLDERS	USE CASES / ROLE
WATER POINT DATA EXCHANGE (WPDX)	Rural water supply	Water point infrastructure, functionality	Global	Continuous (user-contributed)	Open portal, map, downloads	Governments, NGOs, researchers	Planning & monitoring of rural water services
SWALIM	Water and land resources (Somalia)	Hydrology, climate, land use	National (Somalia)	Varies	Maps, dashboards, downloads	Somali govt, UN, NGOs	Disaster response & development planning
USAID WASH NEEDS INDEX	WASH needs prioritization	Composite indicators (WASH access, insecurity, gender)	Global	Periodic	Interactive dashboard	Donors, policymakers	Country prioritization for funding
USAID WASH DATA ATLAS	Subnational WASH coverage	Access data (5x5 km, admin)	Subnational	Periodic	Interactive map	Govts, USAID, NGOs	Planning, equity analysis
SERVIR	Climate & water resilience	Satellite data (rainfall, land, water)	Global, regional	Varies	GIS tools, catalog	Planners, researchers	Early warning, adaptation planning
WRI AQUEDUCT	Water risk & security	Baseline stress, projections, flood risk	Global	Periodic	Interactive maps, downloads	Governments, private sector	Risk identification, resource planning
WORLD BANK WATER PORTAL	Water sector data	Resources, services, investment	Global	Varies	Open data portal	Researchers, planners	Benchmarking, analysis
UN-WATER GLAAS	WASH systems (governance)	Policies, finance, HR	Global	2–3 years	Visualizations, downloads	Govts, UN	Monitoring systems & enabling environment

MWATER	WASH data management	Water points, quality, functionality	Global	Real-time	Mobile & web, dashboards	Govts, utilities	NGOs,	Monitoring, decision support
AKVO	Field data collection	Surveys, service metrics	Global	Real-time	Mobile & web tools	NGOs, UNICEF, govts		Monitoring & evaluation
KOBOTOOLBOX	Assessment data collection	Surveys (custom)	Global	Real-time	Offline app, exports	NGOs, researchers		Needs assessments, M&E
WATER, PEACE & SECURITY	Conflict forecasting	Water/climate conflict risk	Global	Quarterly	Interactive maps	Governments, peacebuilders		Early warning, risk analysis
GLOBAL WATER WATCH	Reservoir monitoring	Reservoir area, volume, levels	Global	Near-real-time	Dashboards, API	Water managers, NGOs		Drought monitoring, resource management
SUBWATERSHED POPULATION TOOL	Watershed population	Population (Pfafstetter units)	Global	Ad hoc	Map interface	Planners, M&E		Estimating affected populations
WHO/UNICEF JMP	WASH access (SDG 6)	Coverage by sector and setting	Global	Annual	Query tool, CSVs	Govts, donors, dev. partners		SDG tracking, global monitoring

5. Data Governance

Data Governance is broadly speaking comprised of four pillars or areas: establishing clear data ownership and accountability (data stewardship), implementing robust data quality management (data quality), ensuring comprehensive data security and compliance (data protection).

Establishing Clear Data Ownership and Accountability (Data Stewardship)

Effective data governance begins with *clearly delineated roles and responsibilities for data stewardship*. Across the WASH sector, this remains a core challenge. Examples from the Agenda for Change initiative and the GLAAS process reveal how the lack of clearly mandated institutions often results in fragmented monitoring responsibilities. Successful initiatives in Uganda, Myanmar, and Honduras demonstrate that co-designed indicators and participatory service level assessments can catalyze institutional commitment. However, governments frequently remain under-resourced or lack technical capacity to take full ownership, highlighting the need for long-term accompaniment and mandates that span political cycles.

Several country-level examples show the *importance of developing protocols and establishing accountability* between actors capturing commitments to not only reflecting what data is needed and the frequency of collection but also the creation of mandates and recurrent cost calculations for collecting the data, analysing it, and making arrangements to feed it into national monitoring databases.

Additionally, country examples of successful data governance include *the use and joint development of (action) plans*. An example shared by the Agenda for Change shows that data collected as part of the assessment stage are being used to develop a *comprehensive District WASH Investment Plan* to achieve universal and sustainable services. This includes defining targets at the district level, identifying activities required to achieve this target, and developing a financial and operational plan. *The duration of this plan should be determined in each district but would ideally be aligned with the current planning cycle and duration, or with plans for achievement of national targets*. An asset assessment process and a district capacity assessment methodology have now been developed and incorporated into the district-wide approach roadmap, so that a more comprehensive understanding of full lifecycle costs is considered for establishing a functioning service environment. ([Agenda for Change](#), 2020)

Implementing Robust Data Quality Management (Data Quality)

Standardization and harmonization of indicators are ongoing priorities across humanitarian and development contexts. The JMP and WASH Severity Classification (WSC) highlight the importance of aligning survey instruments and administrative data with global benchmarks. Yet implementation is uneven. *Inconsistencies between MSNA and JMCNA tools or between utility-level KPIs and national reporting frameworks erode confidence in the data*. Good practices include the integration of WASH accounts tools (WAPT) and country efforts like those seen in Ethiopia and Madagascar, which have streamlined indicators and aligned national planning and budgeting cycles with evidence collection.

Ensuring Comprehensive Data Security and Compliance (Data Protection)

A conspicuous gap in the WASH sector is the *near-complete absence of formal data protection protocols or privacy frameworks*. As digital platforms expand (e.g., mWater, Akvo), concerns over consent, data misuse, and community trust become more pressing. GLAAS and JMP documentation acknowledge the growing relevance of geospatial and disaggregated data, but operational

guidance on data security, ethical use, and compliance is missing. The sector should learn from adjacent fields such as health or humanitarian protection, where data sensitivity protocols are more advanced.

6. Finding of the Desk review

Fostering a Data-Driven Culture

The transformation of data into actionable decision-making is still emerging. While more data is collected than ever before, *GLAAS reports show many countries lack institutional incentives, analytical capacity, or data literacy to drive its use*. Myanmar's integration of MIS platforms and participatory indicator co-development, or South Ari's learning alliances in Ethiopia, reveal the power of collaborative reflection. Yet, many monitoring processes are donor-driven and compliance-oriented. Cultivating a culture that values data for continuous improvement will require long-term investments in people, tools, and learning ecosystems. As the GLAAS process notes, embedding data dialogue within planning and coordination routines can serve as a strong entry point.

Across all examined literature -it is clear that *what fosters data-driven culture is collaboration and accountability*, particularly in the WASH sector, where we have already outlined the complex stakeholder landscape and challenges along the data value chain.

However, consistent, intractable challenges remain and need to be addressed in the future. The Humanitarian Innovation Fund points out that the sector needs to focus on improving ways of working with water service providers; aiding in the transition of coordination from the emergency phase to recovery and long-term programmes, and improving the capacity and approaches towards working with different stakeholders ([ELRHA, 2023](#))

A second factor fostering a data-driven culture is the *establishment of robust and inclusive processes*. The Agenda for Change shares examples of these:

- The RANO WASH program in Madagascar took a comprehensive approach to working with the national government's Introducing and institutionalising new. This includes 1) streamlining indicators within the mandates and budgets of permanent sector and aligning these to national performance benchmarks; 2) more actors. Members have had long-term collaborations with efficient data flows, customised user MIS software developers, which have helped serve their interfaces and integrating ICT for own organisational data needs, and also have led co- development to improve timeliness and evolution of the software with the developers. Examples accuracy; and 3) updated tools and planning models. ([Agenda for Change, 2020](#))
- WaterAid identified support for monitoring as a key entry point for broader Myanmar WASH-sector reforms (particularly for planning and financing) and created a formal memorandum of understanding for working jointly with the Department of Rural Development to target this challenge. To ensure government ownership of the process, key government drivers were identified, including the desire to improve progress in water supply tracking, recognition of required improvements in service delivery management, and the aspiration to modernise processes in line with the rapid technology uptake. An initial structured assessment to identify key bottlenecks and opportunities for strengthening Department of Rural Development monitoring was undertaken at the national level, with subnational input from three state offices. At the same time, 200 government staff from the national and sub-national levels were engaged in review and development of rural water supply indicators, data collection, and

analysis. The approach included co-designing, testing, and adapting key improvements to monitoring processes.

Fostering data-driven culture is often successful, where actors can lead by example and convince and inspire through high-quality examples of analytical products that meet user needs and become sought after prototypes. Undertaking assessments to inform and catalyse action planning on specific topics, for example, undertaking shit flow diagrams, non-revenue water or functionality assessments, etc. This may be at the level of service providers (e.g., utilities), service authorities, or at the sector level. To increase access to sanitation services in Kitgum, Uganda, Water For People worked with the Municipal Council technical and political staff to create a Town Sanitation Plan. During the process of putting together the plan, data from the consultant who had been contracted by Water For People to establish a shit flow diagram was supplemented by data compiled by Village Health Teams and Kagga and Partners. ([Agenda for Change](#), 2020)

Data Use and Decision Making

Establishing the understanding of Data Users and Data Producers (Stakeholders), of available Data Sources, Platforms and Flows and principles of Data Governance, key information needs, key challenges and opportunities of data use have emerged. We established that those vary dependent on the level of decision-making: strategic, programmatic or operational. In this section, we dive deeper to unpack these elements further.

We also note that a *systematic capture of review of the information needs of Data Users in the WASH Data Ecosystem has not been conducted*. The Journal of International Humanitarian Action states that *while there are reviews of research gaps as well as discussion of problem areas* for decision-making in humanitarian relief operations, they *did not delve deeply into the decision factors that are relevant for the problem areas*. Instead, each problem area has become associated with a long, scattered, and unmapped list of decision factors. The number of decision factors increases correspondingly due to the contextual changes in operational fields, such as types of disasters, geolocations of disastrous areas and their infrastructures. ([Journal of International Humanitarian Action](#), 2021)

It is important to note that the divide between humanitarian and development responses that has characterised the past decade has often translated in a set of diverse stakeholders and with-it a diverse set of data users and decision-makers. This distinction is visible when we examine the audiences served by the key stakeholders leading data processes such as e.g. WHO and UNICEF and the Joint Monitoring Programme for Water, Sanitation and Hygiene (JMP) which serves as a key reference for WASH baseline data. The JMP provides estimates of progress in *household drinking water, sanitation and hygiene* since 2000. The other joint program of WHO and UNICEF is the Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS). The objective of GLAAS is to provide policy and decision-makers at all levels with a reliable, easily accessible and comprehensive *analysis of WASH systems* to make informed decisions for sanitation, drinking-water and hygiene.

To reiterate, strategic level decision making is often centred around managing and responding to public health challenges, responding or preventing disease outbreaks and responding to immediate life-saving needs. Questions to be answered included understanding what level of coverage is required in humanitarian crises to prevent outbreaks of disease; to maintain access to water at reasonable costs; to mitigate water scarcity and conflicts between host and IDP/refugee

communities; to rehabilitate water points; and around the impact of intermittent water supply systems on health and water quality. ([ELRHA](#), 2023)

Programmatic level decision making is often centred around WASH systems; governance (including legislation, policies, plans and regulatory frameworks), institutional arrangements, financing streams and financial systems, monitoring systems for informed assessments and reviews, and human resources and capacity development. *Operational level decision making is often centred around the concrete aspects of WASH service delivery*, with all its complexities. Making operational decisions in dynamic and volatile humanitarian context is not only complex but also challenging. Responders face difficulties with fluctuating relief demand, information and knowledge scarcity, distinct opinions from stakeholders, severe economic restrictions, and the interdisciplinary nature of the problem settings (Behl and Dutta 2019; Sheu 2010). ([Journal of International Humanitarian Action](#), 2021)

As seen in the section examining the Data Sources, as well as Data Users and Producers, there is greater clarity at the strategic level and greater detail of data sources at the operational level. *However, at the programmatic level, the focus is on systems, and here there is a clear gap in available and accessible data sources*. These data sources are typically under the stewardship of government authorities and depend on a variety of data governance models.

How Evidence has Influenced Policy and Practice

Evidence-based decision-making has led to notable shifts in WASH policy and practice in both humanitarian and development fields over the past decade. Below are examples illustrating how evidence has concretely influenced actions and strategies:

Where examples of data use are available, they are mostly at the operational level, where data flows between stakeholders can be more directly observable:

- The uptake of evidence in humanitarian policy/practice is often seen in the refinement of guidelines and the introduction of new interventions based on documented success. For instance, *emergency cholera responses have changed due to accumulating evidence*. After years of responses, agencies gathered evidence that early deployment of household water treatment and quick installation of oral rehydration points drastically cut mortality in cholera outbreaks. This evidence informed updated cholera outbreak guidelines that emphasize rapid “WASH surge” actions.
- The incorporation of *Menstrual Hygiene Management (MHM)* into humanitarian WASH programs, initially often overlooked, the needs of women and girls for menstrual hygiene in crises. This has now been documented through assessments and studies. Evidence from field research (including surveys reporting high percentages of women lacking access to sanitary materials in crises) has spurred the inclusion of MHM kits and education in emergency responses (pmc.ncbi.nlm.nih.gov). As a result, major agencies and the Global WASH Cluster issued practice notes and toolkits for MHM in emergencies, changing the standard practice to be more inclusive of this aspect.
- Another clear influence of evidence is seen with *hygiene promotion during epidemics*. During the West Africa Ebola crisis (2014–2015), epidemiological evidence showed that safe burial practices and household disinfection were critical, leading WASH teams to adapt their interventions (e.g., providing handwashing stations at funerals, as evidence dictated).
- On a policy level, humanitarian *donors and coordination bodies have increasingly demanded evidence of effectiveness before scaling up innovations*. A case in point: chlorine dispensers at water points (a technology to disinfect water) were piloted in various emergencies;

evidence from evaluations in Haiti, DRC, and other contexts demonstrated that these dispensers were effective and accepted by communities, which led to them being scaled up and referenced in WASH Cluster technical guidance as a viable emergency water treatment method (washcluster.net)

In general, humanitarian agencies like the ICRC, UNICEF and MSF have set up knowledge management units to capture evidence from each response and feed it into training and guidelines. This institutional learning has led to improved practices such as standardizing water quality monitoring in all refugee camps (informed by evidence of past waterborne disease outbreaks).

While challenges remain in translating research to practice quickly, there is a clear trend: when strong evidence emerges in the humanitarian WASH sector, it has prompted tangible changes, from the design of latrines (e.g., more gender-segregated facilities after evidence on gender-based violence risks) to the decision of whether to truck water or provide cash for water (using evidence on cost-efficiency and user preference).

- The Agenda for Change initiative provides a compilation of use-cases showcasing the evidence-use-action linkages: For example, CARE worked with local government to set up OMAS, using data and evidence to demonstrate improved coverage, health, and service delivery. These municipalities have data on the number of households, the population, the main water source, the state of the water source, latrine coverage and status, management and practices of the water committee, and tariffs charged. Each local community collects money for their water source and then pays the trained municipal technician to fix the water system. CARE was seen not as an NGO implementing a water project, but rather as a facilitator; a connector between the community and the municipality. Municipalities without OMAS quickly began to see the value of having an office where communities could contact the municipality about technical needs or concerns regarding water and sanitation. ([Agenda for Change](#), 2020)
- A commitment to monitoring services across a district over the long term, including not just their own projects but all water points, was a key step on the journey. This monitoring effort was not implemented for any one grant, project or funder. It came at a time when data-driven decision making was becoming to being able collect it consistently over time in the same places, made the realities of sustaining services hard for any stakeholder to ignore. This enabled a shift in the conversations on how to effect lasting, long- term change, which required changing the focus from direct implementation of infrastructure projects to considering how to keep services going over time. ([Agenda for Change](#), 2020)
- Welthungerhilfe undertook a district-wide inventory mapping of all water sources in Karamoja District. The data were used to advocate for a greater service authority focus on addressing non-functionality. The data helped the service authority budget for capital maintenance, led to discussions on tariff setting, and informed the structuring of the handpump mechanic association's network ([Agenda for Change](#), 2020)

Examples of the use of evidence at strategic levels include:

- Policy and practice in development contexts have likewise been significantly shaped by evidence, especially as countries strive to meet ambitious SDG targets. One prominent example is the global movement to eliminate open defecation. *Evidence linking poor sanitation to child stunting and health costs provided a powerful rationale for governments to act.* Research in India showed that open defecation was associated with high levels of child

growth failure, accounting for a large share of stunting in some areas (washmatters.wateraid.org)

- Such *evidence was cited by policymakers to justify massive investments in sanitation*. India's Swachh Bharat (Clean India) Mission, launched in 2014, was bolstered by both national and international evidence that improving sanitation could yield significant health and economic benefits for society. The campaign's design (which focused on behavior change alongside toilet construction) was influenced by lessons from earlier evidence. For instance, evidence from Bangladesh's CLTS approach and other behavioural studies shaped how India rolled out community mobilization.
- Another example is the integration of WASH with health and nutrition policies: as multiple *studies showed that combining WASH with nutrition interventions did not automatically produce synergistic effects* unless both were high-quality, *policymakers adjusted strategies*. In countries like Zambia and Ethiopia, national nutrition action plans were revised to *include more explicit WASH components (like promoting handwashing in feeding programs) in a targeted way*, based on evidence of which WASH practices most affect child nutrition.
- Hygiene policy has also evolved with evidence. The *inclusion of a handwashing indicator* in SDG monitoring led *many countries to add hygiene promotion to their national WASH policies* where it might have been previously neglected. For instance, the government of Ethiopia adopted a policy of a "sixth pillar" in its Health Extension Program: integrating handwashing promotion into antenatal care and neonatal care, after evidence from pilot programs showed that this improved newborn care outcomes (globalhandwashing.org)
- At the international level, evidence has influenced donor and NGO practices in development WASH. The World Bank and other large *funders increasingly require evidence of cost-effectiveness and sustainability in project proposals*. This has led implementing agencies to use evidence (from prior evaluations or sector studies) when designing programs – for example, citing evidence that *community management of water points often fails* after a few years, many new projects *now incorporate post-construction support mechanisms* (an adjustment based on evidence of what improves longevity of water systems).
- Additionally, the last decade *saw systematic reviews and evidence summaries* (such as Cochrane reviews on WASH interventions) that have *synthesized global knowledge*. These have guided guidelines like WHO's drinking-water quality guidelines and sanitation safety planning approach, ensuring they are rooted in the latest science. *Summaries of "what works"* in hygiene education or sanitation marketing, for instance, have been published and used by practitioners to replicate successful methods. The net effect is that today's development WASH policies are more data-driven than those from a decade ago.
- *Many countries now have evidence-informed national WASH plans*, setting targets based on baseline data and choosing intervention models that evidence suggests are most appropriate (rural sanitation approaches differ from urban, informed by research into user preferences, economic analysis, etc.).
- Importantly, *evidence-based decision-making has also empowered advocacy* – NGOs and civil society use evidence to press for greater government budget allocations to WASH, by showing the return on investment (for example, evidence that every dollar invested in water/sanitation yields several dollars in economic benefits through improved health and productivity). This kind of evidence-driven advocacy contributed to increasing WASH's profile in development agendas and securing policy commitments, such as the human right to water and sanitation being recognized and translated into national laws in various countries.

There are also instances where evidence in either development or humanitarian WASH as influence the other. For example, evidence from humanitarian responses to protracted crises has informed

development practice for services in fragile contexts, and vice versa. The emergence of the **humanitarian-development nexus** concept in WASH owes much to evidence that gaps often occur when relief projects hand over to development actors. As a result, policies now stress transitional strategies (e.g., designing emergency water systems that can be upgraded to permanent ones) based on evidence from past transitions. In summary, whether in a disaster or in a national ministry, WASH decision-makers have increasingly looked to evidence either through an evaluation or a data monitoring system, to shape their policies and interventions. These examples underscore that evidence, when effectively communicated and contextualized, can lead to meaningful changes: new policies, better program designs, and ultimately improved WASH outcomes on the ground.

Despite clear progress, significant challenges and gaps remain in achieving fully evidence-based decision-making in WASH. Both humanitarian and development contexts face obstacles that limit the generation, sharing, and use of evidence, albeit in different ways.

A key aspect of increasing data use and improving governments' capacity to monitor is the increasing quality of data collected and analysed by GLAAS. Over GLAAS cycles, WHO has worked to increase the quality of GLAAS data by implementing a more rigorous quality assurance process following country survey submissions with stronger engagement with WHO regional and country offices. WHO will continue to work to improve the quality of data collected through GLAAS during this strategy period by improving processes, continued collaboration with the three levels of WHO and utilizing the GLAAS data portal to aid in quality assurance processes. ([World Health Organization, 2023](#))

In humanitarian WASH, a persistent challenge is the limited quantity and quality of evidence available. Conducting rigorous studies in crisis conditions is difficult due to ethical concerns, access constraints, and urgent timelines mean that randomized trials or long-term studies are rare ([pmc.ncbi.nlm.nih.gov](#)). As a result, the evidence base in humanitarian WASH has gaps; a 2021 systematic review highlighted a lack of high-quality experimental studies on the impact of WASH in crises, noting that what evidence exists is often of low or medium quality and heavily focused on a narrow set of outcomes (mostly diarrhoea incidence) ([pmc.ncbi.nlm.nih.gov](#)). This gap makes it hard for humanitarian actors to confidently identify “what works best” beyond general best practices.

Another issue is that *even when evidence exists, it may be underutilized*. Operational agencies under pressure might default to standard interventions without fully digesting lessons from past evaluations. A study of WASH programs in Uganda found that despite increases in available data, using evidence in decisions remained challenging; respondents noted that evidence was often fragmented, not in an actionable format, or even contradictory, and that organizational habits and information silos impeded evidence uptake ([researchgate.net](#)). This points to institutional and human factors considering that staff may lack the time or training to interpret evidence, or they may trust personal experience over reports.

Translation of evidence into practice is another hurdle. Even when research is published on a successful intervention, there is no guarantee that field teams will know about it or have the resources to implement it. There are also systemic disincentives; for example, short funding cycles in humanitarian response can discourage thorough evaluations, leading to a learning gap. Coordination mechanisms like the Global WASH Cluster have tried to address this by establishing learning platforms, but the *challenge remains to institutionalize learning and evidence utilization across the sector* ([evaluationreports.unicef.org](#)). The humanitarian evidence-to-action gap is well recognized. Elrha's humanitarian research program noted that while research and evidence have

grown in the last decade, their impact on policy and practice has not kept pace due to barriers in translating findings into action (elrha.org)

In summary, *the humanitarian WASH sector struggles with gaps in robust evidence, difficulties in conducting research, time constraints, and organizational barriers* that inhibit evidence-based decisions. Bridging these gaps will require continued efforts to fund WASH research in emergencies, simplify evidence into user-friendly guidance, and foster a culture that values data and learning even amid crisis response.

In the development context, the challenge is usually not a lack of data, but making sense of abundant data and ensuring it is actually used for decisions. Many developing countries have, with donor support, improved their WASH data monitoring, yet a *common gap is the “last mile” of data use*. Reports have found that even when comprehensive data is collected (for instance, via national management information systems or surveys), it does not automatically translate into policy changes or better planning (washmatters.wateraid.org). One World Bank evaluation concluded that while data production capacity had increased in partner countries, *data utilization remained weak*, recommending a shift towards a user-centered data culture (washmatters.wateraid.org). This highlights issues like lack of analytical capacity in institutions, or decision-making processes that don't integrate evidence (possibly due to political or budgetary reasons).

Another challenge in development WASH is the political and institutional context. *Decisions about infrastructure or service models may be swayed by politics or entrenched interests rather than evidence.* For example, a city might invest in a flashy water project for political gain, even if evidence suggests a different investment would yield more benefit for the poor. As one analysis noted, policy decisions are inherently political and evidence often comes as a large, contradictory body of information that decision-makers must sift through (washmatters.wateraid.org). Thus, *strong evidence might be available but not sufficient to drive decisions* if it conflicts with political priorities or biases.

Additionally, *evidence gaps do exist in development WASH* for certain emerging issues, for instance, the *impacts of climate change on WASH services* and the best adaptation strategies are areas where evidence is still evolving. Similarly, *inclusive WASH* (for people with disabilities or in challenging contexts like informal settlements) is a field where *more evidence is needed* to guide practice. The development sector also faces the task of reconciling mixed evidence: some recent high-profile studies produced unexpected results e.g., mixed results on whether WASH investments alone improve nutrition outcomes which can create uncertainty or disagreements on policy direction. This requires sophisticated understanding and sometimes *course corrections in strategy*, which can be slow in large bureaucracies.

Finally, a practical gap is the *capacity to analyze and apply evidence at local levels*. A national ministry might have access to experts and data, but local district officers, who often make frontline decisions on WASH implementation, may not have the tools or training to use evidence effectively. Bridging this gap involves capacity building so that data from monitoring or evaluations is packaged in accessible ways for local decision-makers. In summary, the development WASH sector's challenges lie *in ensuring evidence is translated into action*, overcoming political economy constraints, avoiding the trap of collecting data for its own sake, and addressing areas where evidence is thin or contested (such as long-term sustainability strategies). *The past decade has shown improvement in generating evidence, but using it consistently remains a work in progress.*

Both contexts share some common challenges in evidence-based decision-making. One is the *silencing of evidence* where research findings may stay in academic journals, monitoring data may stay in databases, and local knowledge may stay in community meetings, without these sources ever combining to inform a holistic decision. Efforts are needed to integrate different types of knowledge (quantitative data, qualitative insights, community feedback) into coherent decision support for WASH. Another shared issue is *biases and perceptions* of decision-makers. As *behavioral science indicates, people do not always act on evidence rationally*; cognitive biases or institutional inertia can lead to clinging to old approaches even when evidence suggests change (washmatters.wateraid.org).

Tackling this requires not just more evidence, but better communication and framing of evidence to persuade and inform. The time lag between evidence generation and uptake is also a concern; a breakthrough study in WASH might take years to influence widespread practice. Stakeholders in both humanitarian and development areas are increasingly aware of these challenges. Initiatives are underway to address them, such as capacity-building programs for evidence-informed policy, creation of online platforms and dashboards that put real-time data in practitioners' hands, and closer collaboration between researchers and implementers to ensure studies ask relevant questions and results are quickly disseminated (elrha.org). Closing the evidence-to-decision gap will likely require sustained commitment such as donors encouraging and funding adaptive management, agencies rewarding learning and flexibility, and governments embedding data use into their governance norms. While perfect evidence-based decision-making may be elusive, narrowing the gap, where decisions are increasingly guided by what works, rather than assumptions, is a critical trend to continue over the next decade.

Finding from the document review

Over the past 10 years, the WASH sector in both humanitarian and development contexts has made strides toward more evidence-based decision-making, yet each context exhibits distinct approaches shaped by its realities. Humanitarian WASH has become more data-driven in assessments and standards, though it still battles with scarce rigorous evidence and the imperative of acting swiftly on “best available/good enough” information.

Development WASH has amassed broad evidence base and has increasingly integrated data and research into policies, though challenges in evidence uptake and remaining knowledge gaps temper its progress. Common trends – such as greater monitoring, emphasis on outcomes beyond infrastructure, and incorporation of behavior science – have emerged across water supply, sanitation, and hygiene initiatives. Key differences remain in the types of evidence favored (immediate operational data vs. long-term research) and how they're applied, but there is a growing dialogue between the humanitarian and development spheres, recognizing that lessons in one can inform the other.

Crucially, numerous examples demonstrate that evidence can and has influenced WASH policy and practice: from emergency standards that save lives, to national campaigns that improve sanitation coverage, to hygiene programs integrated into health systems. These successes illustrate the value of investing in evidence generation and knowledge sharing. At the same time, this review highlights that making decisions truly evidence-based is an ongoing journey. Whether constrained by time, resources, or politics, decision-makers sometimes struggle to fully leverage evidence. Bridging these gaps – by improving research in emergencies, fostering a culture of learning, and ensuring data informs action at every level – is essential for the WASH sector to maximize its impact. Going forward, both

humanitarian and development practitioners are called to continue strengthening the evidence foundations of their work. By doing so, they will be better equipped to design effective water, sanitation, and hygiene solutions that not only address immediate needs but also achieve sustainable, healthy outcomes for communities worldwide.

02. WASH Data Ecosystem: Qualitative Thematic Synthesis

Building on the findings from the literature review, this section presents the results of 25 Key Informant Interviews (KIIs) conducted with stakeholders from the WASH sector at national, regional, and global levels. While the desk review provided a structured overview of the WASH data ecosystem as described in existing reports and policy documents, the KIIs offer practical, experience-based insights into how data is used in real-world decision-making. The interviews explored persistent barriers to evidence use, examples of effective data practices, and opportunities to strengthen decision-making across humanitarian and development contexts. All interviews were systematically coded and analysed to identify recurring themes and context-specific variations. Together, these perspectives help to deepen the understanding of the current WASH data landscape and complement the document-based analysis with grounded observations from sector practitioners.

1. A Disconnect Between Data Generation and Use

One of the most consistent findings across both the literature review (Part 1) and the Key Informant Interviews is the persistent gap between data availability and its meaningful use in decision-making. While the WASH sector continues to generate large volumes of data—particularly through assessments, surveys, and dashboards—this evidence is rarely integrated systematically into planning or response strategies.

The desk review revealed that reporting systems often emphasize output generation over reflection, and that much of the data produced is fragmented across tools, agencies, and formats. These findings were echoed in the interviews, where respondents described a data ecosystem that is active in production but passive in application. Data is frequently treated as a compliance product: a requirement to fulfil donor obligations, rather than a resource for guiding strategy or programme design.

“Data are collected but rarely revisited — they’re seen as deliverables, not tools.”

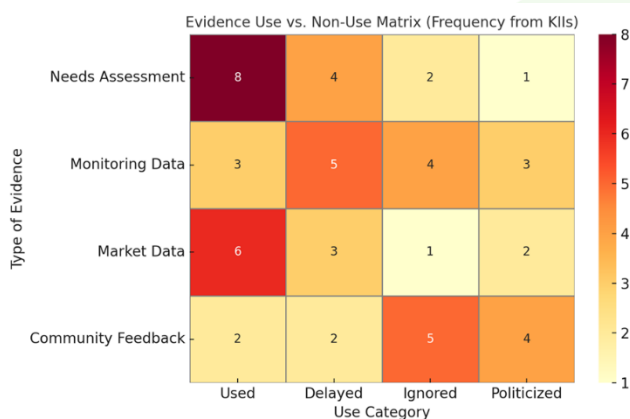
Humanitarian WASH professional

In this context, data serves more as an archival or symbolic layer than a dynamic input into decision-making. Its value is often measured by its presence in reports rather than its influence on action. This disconnect not only limits the strategic function of data but also contributes to fatigue and disengagement among data producers, especially when there is little feedback or visibility into how their efforts translate into decisions.

To further illustrate these findings, the following heatmap captures how different types of evidence were described during the interviews in terms of their use or non-use. Respondents were asked how various data types—such as needs assessments, monitoring data, market data, and community feedback—were typically used. Their answers were categorised as: Used, Delayed, Ignored, or Politicised.

The heatmap reveals several important dynamics. Needs assessments are the most consistently used form of evidence, but even then, they are frequently delayed or only partially utilised. Monitoring data, which should inform programmatic adjustments, is more often delayed, ignored, or even politicised—pointing to weaknesses in real-time learning and adaptive management.

Figure 3 : Heatmap illustrating the Evidence VS Non-Use



Market data shows relatively high usage but still encounters gaps in application, particularly in contexts where procurement or supply chain decisions are centralised. Most notably, community feedback emerges as the most frequently ignored or politicised form of evidence. Despite widespread emphasis on accountability to affected populations, community-level insights are often excluded from formal decision-making processes or filtered through political considerations. This

matrix reinforces the broader narrative: data is not lacking, but its use is inconsistent, delayed, or sidelined depending on its type and perceived political sensitivity. The WASH sector must not only invest in data collection, but also in the systems, trust, and incentives required to ensure that all types of evidence—especially those closest to affected communities—are valued and acted upon.

Many respondents also stressed the importance of verifying the origin, reliability, and credibility of data before using it. Data is not only filtered by relevance, but also by trust. Verification requires time, technical capacity, and resources including resources to discuss and triangulate it, which are often unavailable in fast-moving operational contexts. A recommendation—aligned with the WASH Roadmap Initiative—would be to promote the role of Data Curators within coordination systems. These actors could serve as trusted intermediaries, ensuring quality control, documentation, and contextual interpretation. Establishing Data Clearing Houses may offer an additional layer of service to WASH Roadmap members, centralising the vetting and validation of key data sets while advocating for the institutionalisation of curation roles.

In addition to formal data sources, several interviewees noted the value of informal evidence, such as verbal reports from community leaders, direct field observations, photographs, and inspector notes. While these forms of evidence often fall outside structured reporting systems, they are regularly used to inform real-time decisions, particularly by experienced field staff. Recognising informal evidence as legitimate—alongside institutional and expert knowledge—could help reduce barriers to its use. Developing frameworks that formally integrate informal sources into analysis and planning processes may improve responsiveness and inclusivity.

Despite continued investment in data collection systems, the sector struggles to close the loop between evidence and action. Strengthening this connection requires more than improving data

quality—it calls for rethinking how data is positioned within institutional processes, how feedback is shared, and how incentives are aligned to prioritise learning and adaptive decision-making.

2. Systemic Barriers and Role-Specific Dynamics in Evidence Use

Barriers and Opportunities for Strengthening Evidence Use

A central theme across all interviews was the range of barriers that hinder the effective use of evidence in WASH decision-making. While opportunities for strengthening evidence use do exist, they are often overshadowed by persistent and overlapping challenges. These barriers fall into four broad categories:

Cultural Barriers - Across all regions, interviewees noted the existence of weak data use cultures. Although data is regularly produced, it is often not trusted, revisited, or used to inform reflection or learning. Instead of being viewed as a decision-support tool, data is frequently treated as an administrative output.

“We can’t link datasets — each partner has their own architecture.”

Field-level WASH stakeholder

Structural Barriers- Fragmentation across agencies and the use of uncoordinated tools continue to undermine effective data use. Systems are developed in silos, without alignment across partners, leading to duplication, inconsistencies, and limited integration. These issues are reinforced by siloed gatekeeping, where data is withheld within institutions, and tool overload, with overlapping platforms and indicator fatigue discouraging use. Systems often prioritise internal reporting needs over sector-wide coordination, while planning and funding cycles rarely align with data timelines.

Capacity Constraints - High staff turnover and limited analytical capacity continue to undermine institutional memory and learning. These issues are especially acute in emergency settings, where continuity and in-depth analysis are difficult to sustain. A related challenge is the lack of knowledge management capacity. KM is not only structurally absent in many settings but also culturally undervalued, limiting opportunities for reflection, synthesis, and long-term learning.

Political Constraints - In some contexts, government actors restrict access to sensitive data, particularly when it may expose weaknesses in service delivery or reflect poorly on national performance. This limits transparency and inhibits informed decision-making. Reputational risk also plays a role, with some actors avoiding the sharing of negative or incomplete data to protect institutional image—resulting in window dressing rather than open, evidence-based dialogue.

These barriers are mutually reinforcing. As a result, data flows through the system, but is rarely reused or meaningfully integrated into decision processes.

Role-Based Evidence Use in WASH Decision-Making

The interviews also highlighted how different actors across the WASH sector engage with data in distinct ways. While all have some degree of interaction with evidence, their ability to influence decisions and navigate systemic constraints varies widely. Five key roles emerged as central to the data ecosystem:

Cluster Leads - Cluster Leads are instrumental in shaping response priorities and infrastructure planning. Their coordination mandate enables them to guide interventions at sector level. However, many report that weak inter-agency collaboration and inconsistent data sharing continue to limit the effectiveness of their role.

Government Officials - Government actors are primarily involved in infrastructure planning, often aligning with national policy frameworks. However, they also face critical system-level limitations, including unreliable digital infrastructure and chronic underfunding of national data systems.

Information Management (IM) Officers - IM Officers are highly active in emergency response and short-term planning. Yet they often struggle to bridge the gap between technical data products and strategic decisions, especially where institutional instability limits uptake by senior decision-makers.

NGO Coordinators - NGO Coordinators often have strong connections to field-level realities but face challenges in aligning operations due to fragmented coordination structures and disjointed data flows. Their insights are valuable but are not always integrated into formal planning processes.

Data Analysts - Data Analysts form the technical foundation of the WASH data ecosystem. They provide input into planning and budgeting processes but typically lack decision-making authority and are often disconnected from strategic-level forums, limiting their ability to influence outcomes.

The interviews also shed light on emerging or hybrid roles that are increasingly relevant in the evolving WASH data landscape. These roles often operate across traditional boundaries and respond to new forms of complexity that are not fully addressed by existing coordination or institutional models. Some respondents described the need for **“Brokers” or “Translators”**; individuals who bridge gaps between levels of decision-making or institutional silos. For example, national-level information management officers who work across both government and organisation to align data processes and priorities.

Others pointed to **Digital Stewards**, individuals who maintain dashboards and data systems under uncertain funding conditions, often without clear institutional support. Their role is critical to ensuring the continuity and usability of fragile digital infrastructure.

A third emerging group includes **Community-facing analysts**; those who gather and interpret data from communities but lack formal pathways to channel insights into national or global decision-making. Their role underscores the disconnect between local knowledge and high-level planning processes.

In parallel, interviewees identified new types of decisions emerging in the sector that demand different kinds of data and expertise. **These include areas such as climate-resilient sanitation planning, digital monitoring strategy, and cross-sectoral integration, particularly linking WASH with health, nutrition, and displacement.**

These shifts point to the importance of not only strengthening traditional roles but also recognising and supporting new functions that are essential for navigating complex, decentralised, and digitally mediated WASH systems. As the sector evolves, the understanding of who engages with data and how must also adapt.

3. The Realities of Decision-Making Contexts

The second most prominent theme emerging from the interviews relates to the context in which WASH decisions are made. Rather than following a linear, evidence-based process, decision-making in the sector is often reactive and shaped by external pressures.

Interviewees consistently noted that decisions are frequently driven by donor timelines, immediate operational constraints, or institutional memory, rather than by the systematic use of data. Planning cycles are often misaligned with assessment cycles, which limits the ability to incorporate timely evidence. In many cases, political or logistical considerations take precedence over analytical inputs, particularly among local government actors.

“We choose what we can implement fast, not necessarily what the numbers say.”

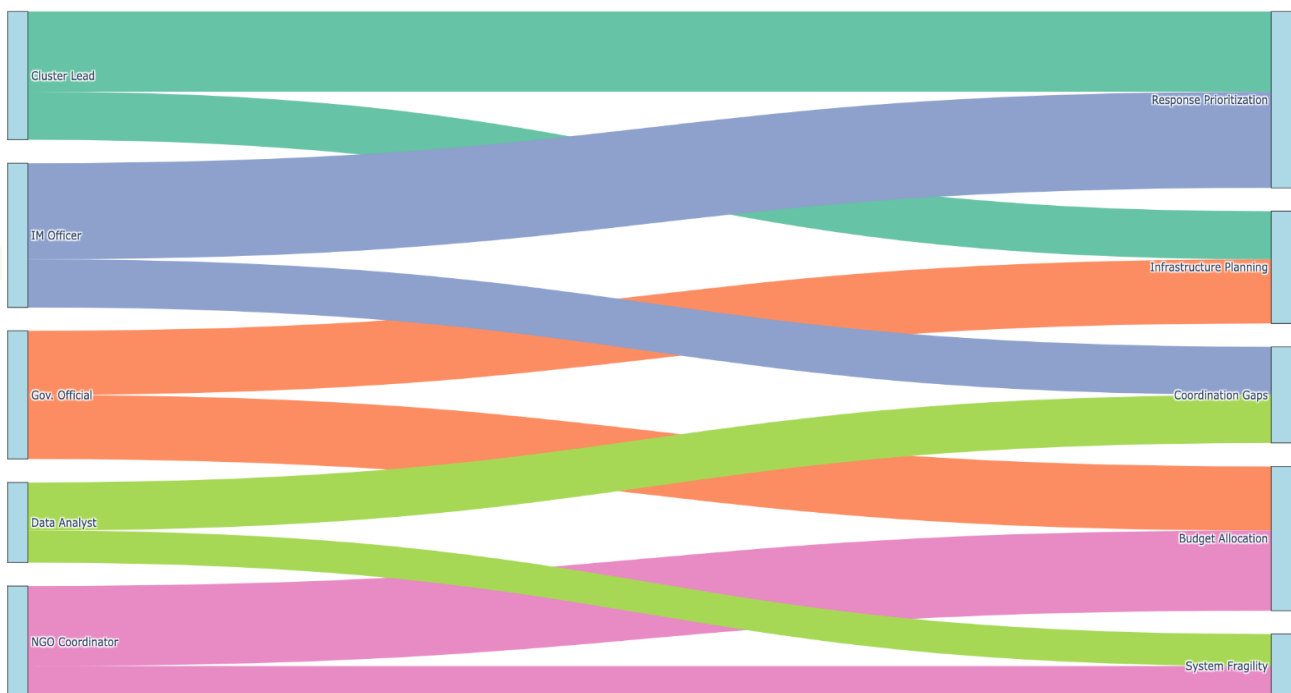
INGO WASH Coordinator

Even within coordination structures, decisions are shaped more by the need to manage relationships and negotiate access to resources than by strategic use of evidence. One humanitarian data specialist commented: *“We know we’ll redo the strategy again in 3 months. So, we just make the best guess now.”*

These findings underscore the importance of understanding the broader institutional and operational context in which data is used—or bypassed—in WASH-related decision-making.

The diagram illustrates how different roles within the WASH ecosystem engage with various types of decisions based on evidence. Rather than revealing a cohesive or centralised approach to data use, the flows show a highly fragmented pattern. Each stakeholder group—such as Cluster Leads, IM Officers, Government Officials, Data Analysts, and NGO Coordinators—tends to engage with specific decision areas, often in isolation from one another.

Figure 4 : Role-Based evidence uses in WASH decision making



This dispersion suggests that evidence is used selectively and unevenly across the system. No single role demonstrates a comprehensive connection to all key decision types, and the weak overlaps point to a lack of centralised mechanisms for synthesising and applying data across actors. This reinforces earlier findings that, while data circulates within the system, it rarely supports joined-up decision-making. Instead, decisions often reflect operational pressures, institutional silos, and role-specific constraints, rather than shared, evidence-based processes.

“We use data to validate a gut feeling, not to initiate change.”

UN agency staff member

Across most interviews, data was described as playing a secondary or supporting role in decision-making. It is often used to validate existing assumptions, reinforce arguments, or provide credibility to decisions already made through consultation or precedent. Few respondents described data as shaping decisions from the outset. More influential were stakeholder consultations, coordination meetings, or reliance on institutional memory and past practice.

This approach weakens the link between learning and action. Without structured processes that elevate the role of evidence early in the decision cycle, data remains reactive and supportive, rather than proactive and strategic.

4. Constraint, frustration and the Limits of Learning in the WASH Data Ecosystem

From Data Extraction to Data Fatigue

Despite significant investments in information management systems, the WASH data ecosystem remains plagued by redundancy, poor interoperability, and limited learning. Many respondents described environments where multiple partners conduct near-identical surveys with slight variations, often tailored to individual organizational mandates rather than shared sector goals. Tools are designed more for upward reporting or demonstrate capacity toward potential funding opportunities than for shared analysis or learning

“Every agency has a form. We spend more time entering than analysing.”

WASH Coordinator

This fragmented landscape places a heavy burden on field-level actors, who are frequently asked to provide data but rarely receive analysis in return. This disconnect reinforces a culture of data extraction rather than data empowerment. Across many contexts, local stakeholders expressed frustration with one-way data flows and a lack of clarity about how their inputs were used. One WASH coordinator working for a Local NGO commented: **“We submit our data and never hear what was done with it.”**

The Fragility of Feedback Loops

A striking observation across the interviews was the widespread absence of functioning feedback loops within the WASH data ecosystem. Respondents frequently described a breakdown in

communication and follow-up between key actors at different levels of the system. This breakdown occurs at multiple points, including:

- Between data producers and those expected to use the data for planning or decision-making
- Between field teams and national coordination platforms responsible for consolidating and interpreting operational data
- Between implementing partners and donors, where reporting obligations are met but rarely followed by dialogue or reflection

This lack of structured feedback limits opportunities for shared learning, weakens accountability, and reduces the overall effectiveness of the data being collected. Without intentional mechanisms to close the loop, insights are lost, motivation to report declines, and the potential for data to drive adaptive programming is significantly diminished.

“We never get to debrief the findings. They just go into the system.”
Program Manager

In many cases, data collected at the subnational or field level is consolidated at national or cluster levels and submitted to donors or inter-agency platforms. However, insights rarely make their way back to those who collected the data. This weakens accountability, erodes trust, and reduces motivation to improve data quality or timeliness.

More specifically, interviews revealed three additional dimensions of this fragility:

- **Horizontal vs. Vertical Fragility**: Feedback loops may function within individual organisations, but rarely extend across agencies, sectors, or levels of governance. This prevents the transfer of learning between frontline actors, national platforms, and cross-sector initiatives.
- **Institutional Reflexivity Gaps**: Many organisations lack systems to reflect on how data has been used over time. Lessons are not systematically captured or reviewed, and there is little follow-up on whether data-informed decisions have led to improved outcomes.
- **Community Feedback Is Often Ignored**: Although widely promoted in principle, community-generated data rarely influences decisions unless it is externally validated. As a result, local voices are filtered or sidelined, reinforcing top-down dynamics.

Together, these findings point to a fundamental weakness in the data ecosystem. Without reciprocal and inclusive feedback mechanisms, the sector risks continuing to generate data without learning from it or acting on its full potential.

Why Strengthening Feedback Loops Matters

Interviews consistently pointed to the importance of rebuilding feedback loops as a foundational step toward a more adaptive and evidence-informed WASH sector. While technical systems for data collection have improved, the absence of structured mechanisms to interpret, share, and act on that data continues to undermine learning and responsiveness.

Several respondents offered practical recommendations to strengthen feedback processes. These included the creation of dedicated Knowledge Management roles to synthesise and share findings, integrating after-action reviews into program cycles, and developing interactive dashboards that support two-way engagement, allowing users to both input and receive information. Others highlighted the need for donors to move beyond reporting requirements and explicitly support the use of data in decision-making.

“We need donor funding for learning moments, not just outputs.”

UN Agency Staff

The consequences of weak or missing feedback loops are far-reaching. When data is collected but not used, motivation declines, and the quality of reporting suffers. Valuable insights remain siloed, accountability becomes one-directional, and opportunities for programmatic adaptation are lost. In the absence of mechanisms to retain and apply institutional knowledge, lessons learned are easily forgotten, especially in high-turnover contexts.

Addressing these issues requires more than technical fixes. It demands a shift in culture and system design—one that values reflection, encourages open learning, and integrates feedback into every stage of the program cycle. Without this shift, the sector will continue to invest in data without fully realising its potential to drive meaningful change.

Humanitarian WASH Coordination and the Underuse of Data

A recurring concern across interviews was the limited role of data in informing decisions within humanitarian WASH coordination structures. Despite the production of numerous reports, dashboards, and updates, these outputs are rarely used to guide strategic planning or programmatic adjustments. Once reports are published or dashboards populated, they are often overtaken by shifting priorities, with little structured reflection or follow-up.

“Once the dashboard is populated, we move on. No one sits down to ask: what does this mean?”

WASH coordinator

This pattern leads to missed learning opportunities and contributes to a sense of analytic fatigue. Reporting becomes a routine obligation rather than a strategic tool. The underlying issue is not a lack of data, but a lack of space and process within coordination structures to pause, reflect, and act on what the data reveals.

National and cluster-level coordination meetings are often focused on immediate operational needs, such as activity updates, funding gaps, and partner presence, leaving limited time for trend analysis, lessons learned, or evidence-based decision-making. Where Information Management (IM) roles exist, they are often under-resourced and limited to documentation, rather than playing an active role in synthesising findings or supporting adaptive learning.

We need time built into the system just to reflect on what our own data is telling us.”

Global WASH Advisor

This lack of reflexivity within coordination mechanisms reinforces a reactive culture, where decisions are made quickly, but learning is slow or absent. To improve the strategic value of data, coordination platforms must move beyond information sharing to embed processes for regular analysis, joint interpretation, and evidence-based adaptation.

The Fragility of Learning in Humanitarian Contexts

Two interconnected challenges emerged strongly from the interviews: the erosion of institutional memory and the sidelining of learning during emergencies. Together, these factors weaken the capacity of the humanitarian WASH sector to adapt, evolve, and make evidence-informed decisions.

High staff turnover in both humanitarian agencies and government institutions remains a critical barrier to institutional learning. When individuals leave, their knowledge often leaves with them. Lessons learned are rarely captured in a structured way or embedded into organizational systems. As a result, each new phase or project risks repeating previous mistakes, with little continuity across teams or response cycles.

“When someone leaves, their insights leave with them.”

INGO Data Officer

This fragility is especially pronounced during emergency responses, where the pressure to act quickly often overrides the time needed for reflection or post-implementation review. Respondents frequently noted that decisions made in the early days of a crisis are seldom revisited, even when data becomes available later. An emergency WASH program manager commented **“We make decisions fast but rarely go back to evaluate whether they were right.”**

In such settings, adaptation becomes anecdotal rather than evidence based. Without mechanisms to retain institutional knowledge or reflect on data in real time, WASH responses risk becoming reactive by default. Building a more resilient and learning-oriented system will require deliberate efforts to document lessons, integrate knowledge into standard operating procedures, and protect space for reflection—even under pressure.

Localization Without Local Ownership

While the principle of localization is widely endorsed across humanitarian and development agendas, interviews revealed a persistent gap between rhetorical commitment and practical implementation. Local actors remain heavily involved in data collection but are largely excluded from the stages

where data is interpreted, analysed, and used to inform decisions. This disconnect undermines both the quality of data and the legitimacy of the decisions it supports.

Local government officers, national NGOs, and subnational coordination staff consistently expressed frustration at being tasked with feeding data into national and global systems, while receiving little in return. They are often burdened by reporting requirements without access to outputs they can use. One interviewee summarised the dynamic: “We’re always exporting data, but nothing is imported back. No analysis, no support, not even validation.”

“We submit the data and wait for decisions from Nairobi or Geneva.”

WASH Officer

While localisation has become a core principle of global programming, the detailed analysis shows enduring asymmetries in how data is collected, circulated, and acted upon. Local actors are positioned primarily as data providers, not as users or decision-makers. As one respondent put it, their role is to “feed the system,” generating indicators and assessments that flow upward into centralised dashboards.

This unidirectional flow of information reinforces extractive patterns. Local systems are mined for data, often repeatedly, without corresponding mechanisms for interpretation, feedback, or adaptation at the point of origin. Sub-national officials and frontline staff referred to this as a “data drain,” where the effort to generate information yields no tangible benefit locally.

Despite commitments to localisation, global tools and templates often arrive pre-designed, leaving little room for contextual adaptation. Several respondents described using mobile platforms or reporting formats that were misaligned with local infrastructure, language, or timelines. In some cases, local teams were asked to provide detailed, disaggregated data without access to the tools or capacity to analyse it.

The result is a hierarchical evidence system in which authority sits at the top, while the burden of data production rests at the bottom. As one interviewee noted: *“We give them the numbers, but we’re never in the room when the conclusions are drawn.”*

These findings suggest that localisation in name does not guarantee localisation in function. Without reciprocal data flows, contextual interpretation, and shared decision-making power, localisation risks becoming performative. A data ecosystem that truly empowers local actors must go beyond data extraction. It must close the loop by enabling local stakeholders to interpret, question, and act on the evidence they help to generate.

5. Emerging Opportunities and Practitioner-Led Solutions

Despite the many barriers discussed, respondents shared a range of constructive ideas to improve how data is used in the WASH sector. These practitioner-led solutions reflect a growing appetite for change, not only in how data is managed, but also in how it is interpreted, shared, and applied in meaningful ways.

A recurring recommendation across interviews was the need to systematically embed dedicated Knowledge Management (KM) roles within coordination platforms and operational teams. Respondents emphasized that these roles should go beyond documentation or archiving. KM staff should act as translators of information, curators of insights, and facilitators of learning, helping stakeholders navigate complexity and apply data in context. This recommendation aligns with guidance from the Global WASH Cluster, which includes KM within its 6+1 core functions. In practice, however, national coordination platforms often struggle to secure sustainable funding for these positions. As a result, KM roles remain intermittently assigned or under-resourced, limiting their influence on learning and evidence use.

“What’s missing is not the data — it’s the space to discuss what it means.”

Cluster Coordinator

Many interviewees also expressed support for donor incentives that promote evidence-based adaptation, rather than static, output-driven reporting. Learning should be an expected and funded part of the programme cycle. Some proposed that after-action reviews and periodic reflection exercises be integrated into both programme design and donor reporting frameworks.

At the same time, respondents cautioned against overly rigid harmonisation efforts. While common indicators and tools are important for alignment, they must not come at the expense of local relevance. Standardisation should enable coherence without undermining flexibility or contextual adaptation.

Several interviewees also called for the development of more integrated dashboards and cross-sector data platforms, linking WASH with sectors such as health, nutrition, and displacement. Although still aspirational, these tools could enable better cross-sectoral analysis and more responsive programming.

When asked about opportunities for future innovation, a few key elements emerged from what interviewees described as their "blue-sky thinking":

- **Climate-Responsive Planning**: Climate risks are beginning to influence infrastructure design and prioritisation, particularly in high-risk or flood-prone areas.
- **Multi-Sector Dashboards and Data Lakes**: These are widely desired but remain difficult to operationalise due to unclear ownership and institutional mistrust.
- **Localisation and Ownership**: Data continues to flow upward, but decisions rarely flow downward. Many respondents underscored the need to invert or at least balance this dynamic.

While Artificial Intelligence (AI) was mentioned as a promising tool, many respondents expressed caution. AI and other emerging technologies were viewed with scepticism, particularly regarding their opacity and the risk of displacing human judgement without sufficient transparency or understanding.

Amid systemic constraints, interviews also revealed a quieter layer of grassroots innovation. These are emergent practices that operate below the radar of formal systems. Often informal and individually led, they reflect pragmatic attempts to maintain functionality in the absence of structural support. One notable trend is the piloting of real-time dashboards, community feedback apps, and open-access data tools. These efforts are typically led by tech-savvy cluster members, government

reformists, or donor-backed innovation labs. Their goals include improving feedback loops, increasing data visibility, and enabling faster, more informed decision-making. However, these initiatives often face challenges with scale and sustainability. Respondents cited high staff turnover, limited funding, institutional resistance, and low digital literacy as key barriers. **“We built a dashboard that worked,” one analyst explained, “but when the consultant left, no one knew how to update it.”**

Together, these practitioner-led efforts point to a more dynamic and user-oriented WASH data ecosystem. One that values reflection, fosters collaboration, and treats data as a shared resource for action rather than a reporting requirement. Sustained investment in locally grounded innovation, flexible systems, and trusted human infrastructure will be key to unlocking this potential.

6. Findings and Recommendations from the Key Informant Interviews

Summary of Findings

The Key Informant Interviews (KIIs) provided a nuanced and grounded perspective on the current state of the WASH data ecosystem. While experiences varied across contexts, several common patterns emerged.

First, data is often used symbolically—to meet donor or reporting requirements—rather than as a practical input into programme design or strategic decision-making. Planning is frequently reactive and driven by urgency rather than guided by evidence.

Respondents also described a sense of analytic fatigue, with data systems perceived as burdensome rather than enabling. Despite high volumes of data collection, limited use, feedback, or reflection contributes to disengagement and missed learning opportunities.

Local actors, while central to data collection, remain peripheral in data interpretation and decision-making processes. This limits ownership and undermines localisation efforts. However, there is growing recognition of the value of Knowledge Management (KM) roles, particularly in their potential to translate data into action and facilitate institutional learning.

Lastly, the push for standardisation—while important for consistency—must be balanced with flexibility. Rigid indicator frameworks can reduce relevance and limit adaptation in diverse operational contexts.

Key Recommendations

The current WASH data ecosystem holds significant potential but suffers from fragmented implementation. To shift from a data-rich environment to one that is truly insight-driven, deliberate and coordinated actions are needed:

- **Strengthen feedback loops** between data producers and users to ensure information flows both ways and informs action at all levels.
- **Embed Knowledge Management** and structured reflection spaces within coordination platforms to support continuous learning and interpretation of data.
- **Incentivize adaptive decision-making**, including through donor mechanisms that value learning and flexibility over static reporting.
- **Align data collection cycles with key planning** and financing processes to ensure evidence is timely, relevant, and used in real-world decision-making.

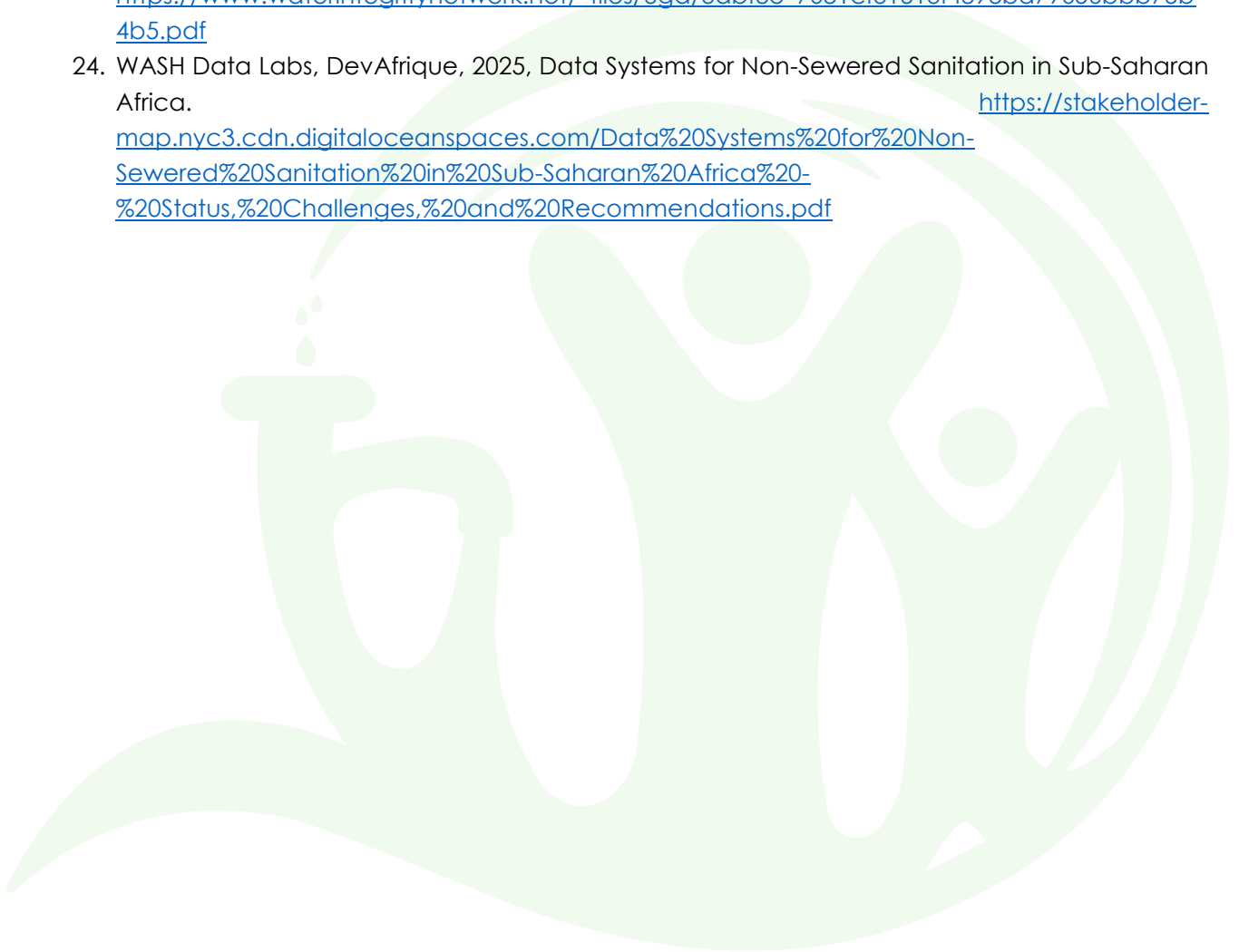
If these elements are addressed together, the WASH sector can move toward a more responsive, equitable, and evidence-based ecosystem—where data not only supports decision-making but actively drives change.



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