Post Project Sustainability Evaluation of Chivi WASH Project in Zimbabwe

Assessing Impact Continuity of CARE's Chivi WASH Project Four Years Post-Implementation

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75 YEARS

Authors

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Acronyms

BMGF	Bill and Melinda Gates Foundation
BVIP	Blair Ventilated Improved Pipe latrine
CWP	Chivi WASH Project
CHC	Community Health Club
DDC	District Development Coordinator
DDF	District Development Fund
DEHO	District Environmental Health Officer
DWSSC	District Water Supply and Sanitation Sub-committee
EHT	Environmental Health Technician
ET	Evaluation Team

FGD	Focus Group Discussion
GoZ	Government of Zimbabwe
HH	Household
LM	Latrine Mason
NGO	Non-Governmental Organization
OD	Open Defecation
ODF	Open Defecation Free
PHHE	Participatory Health and Hygiene Education
SAG	Sanitation Action Group
SaFPHHE	Sanitation Focused Participatory Health and Hygiene Education
RDC	Rural District Council
VHW	Village Health Worker
VPM	Village Pump Mechanics
WASH	Water Sanitation and Hygiene
WPC	Water Point Committee
WWSSC	Ward Water Supply and Sanitation Sub-Committee

Executive Summary

Background. According to the WHO and UNICEF almost 2 billion people live without access to safely managed drinking water services, 616 million utilize unimproved sanitation facilities, and 494 million practice open defecation (OD) (2021). Water and sanitation are incredibly inadequate in less economically developed nations like Zimbabwe, where only 68% of the population has improved sanitation, 29% of people drink from unimproved water sources, and national OD rates exceed 21% (ZIMSTAT & UNICEF, 2019). These limited services and behaviors like OD continue to perpetuate the spread of disease. To address the challenges of limited sanitation and water access in Zimbabwe, CARE – a global humanitarian organization operating in over 100 countries – implemented a multi-intervention water, sanitation, and hygiene program in Chivi district, Zimbabwe between 2014-2017. The program, called the Chivi WASH Project (CWP) was funded by the Australian Government and employed community-managed water supply, a focus on women participating and working as private entrepreneurs in the WASH sector, and the Government of Zimbabwe's (GoZ) Sanitation Focused Participatory Health and Hygiene education (SaFPHHE), which includes similar "triggering" elements within Community Led Total Sanitation (CLTS) to promote community and individually led expansion of sanitation coverage.[1]

The program's final evaluation in 2017 underlined the program's effectiveness in improving health outcomes like reducing (reported) diarrhea, increasing coverage and use of sanitation facilities and improving access to water. Increases in handwashing behavior and reductions in OD were also achieved as part of the program. Sanitation and water service sustainability is critical to gender equality, quality of life and curtailing public health challenges associated with lack of safe water and OD.

Methods. In March 2021 CARE conducted an ex-post evaluation of the CWP, more than four years after the end of implementation, to assess the continuity of the project's impacts. Many WASH projects are unclear on what aspects are sustained – infrastructure, behavior change, attitudes, investment, capacity, etc. This evaluation sought to assess which aspects of CWP, if any, were sustained in select Zimbabwean communities across four key areas of change: 1) Sanitation infrastructure and use; 2) Improved water services and reliability; 3) Perceptions on gender equality and 4) Effects of COVID-19. The ex-post evaluation received ethical approval from the HLM IRB who reviewed the survey tools and research protocol. The study employed a mixed-methods approach, analyzing quantitative and qualitative data collected by enumerators through household (HH) surveys and semi-structured interviews (SSIs).

Results. Surveys were completed in 315 HHs across 29 CWP villages. SSIs were completed with village heads (22), Water Point Committee (WPC) members (12), District Government officials (3) as well as 6 Village Pump Mechanics (VPMs) and 6 Sanitation Action Group (SAG) members.[2]

***Sanitation**:* Four years later, over 91% of HHs reported owning and using a latrine. However, HH reported OD increased slightly, from between 0-1% at endline (2017) to 7.9% ex-post (2021).[3] The

[1] Triggering is the term used when a community is facilitated through a series of activities that "triggers" them to want to make a change from OD to building and using a latrine.

[2] Village heads: community leaders.
WPCs: community volunteers with basic training on management and maintenance of water points.
District government officials: local government representatives who work in the water and sanitation sector.
VPMs: entrepreneurs with training in borehole maintenance that receive renumeration from the community for their work.
SAGs: community members appointed to motivate community to expand sanitation coverage and reduce open defecation.

[3] HHs reporting using the bush or a field to defecate.

analysis also found the proportion of HHs reporting OD was higher among HH headed by women (12.2%) than HHs headed by men (4.9%). Of those surveyed, 9% of respondents reported not feeling safe toileting at night, the majority (79%) of these being women. There was a statistically significant difference in perceived safety toileting at night between HHs with and without any latrine. Those with no latrine were more than five times as likely to feel unsafe toileting at night compared to those with a latrine.

While HH reported OD was low, it appears to have had larger effects on community-level open defecation free (ODF) status. Of the villages sampled, just 27.6% (8/29) of those ODF certified in 2017 remained so through 2021. Across all CWP villages certified as ODF in 2017, 25.9% (44/170) remained certified at the time of this study (DWSSC, 2017; DWSSC, 2021). Flooding and heavy rain significantly impacted sanitation infrastructure sustainability, with ultra-poor and vulnerable HHs often unable to rebuild. According to SSIs, SAGs did not provide support to CWP communities post-project, which also may have impacted sustainability of sanitation outcomes, since their role was to remind people the importance of hygiene and sanitation use.

Hygiene*:* Knowledge of handwashing at critical times improved since CWP endline. However, just 34.6% of survey respondents reported "always washing their hands with soap." Enumerators observed soap next to a functional handwashing facility in only 1.9% of HHs, a significant decrease from CWP endline.[4] The CWP endline reported 87% of HHs had handwashing facilities equipped with soap or ash. There was a significant association between presence of a functional handwashing facility and ward (p=0.001). Enumerators observed the highest levels of HHs with handwashing facilities equipped with soap and water in ward 5: 8% compared to 1.9% across the sample.

Water*:* Of all HHs sampled, 79.4% reported using an improved water source for drinking, compared to 94% at CWP 2017 endline. Over 85% of HHs report having enough drinking water in the past 30 days. However, while 58.7% of respondents reported their main HH water source is always working, 41.3% reported some level of disfunction. Furthermore, the dissemination meetings with community members suggest that water point functionality may be worse than expressed in interviews with WPC members, with communities stating many boreholes are not functioning.

Most WPCs continue to support CWP villages, often facilitating repairs in under one week. Some VPMs mentioned that lack of access to tools limited their ability to fix boreholes. Additionally, the money earned by VPMs for water point repairs was often insufficient. Some women VPMs are not recognized, respected, nor utilized in their roles as professionals. Lastly, HHs safely storing their drinking water in a container with a lid decreased from between 90-93% at endline to less than 60% ex-post.

Conclusions. In general, CWP's integrated approach led to sustained understanding and use of WASH. However, for sanitation, more efforts are needed to maintain community ODF status and to support HHs build or re-build quality latrines. For water, increased access to spare parts and mobilization of funds for maintaining functionality of improved water points is needed. VPMs, particularly women, are often underutilized and require access to tools for repair. Regarding hygiene, handwashing facilities like HH tippy taps should be present to sustain handwashing.

[4] Defined as being equipped with water and within 10-15 meters of the toilet.

Introduction

Problem Statement

Lack of adequate WASH infrastructure and services perpetuate the spread of disease. This public health issue is deeply rooted in poverty and insufficient maintenance of water and sanitation infrastructure by government institutions. Universal provision of piped water and sewage collection networks is quite costly, especially in low and middle-income countries (Whittington et al., 2020). The resulting implications and disease burden present a significant challenge for government institutions and key stakeholders that seek to realize change. Given these challenges, innovative solutions have been adopted to expand water and sanitation systems coverage and eliminate OD and other harmful WASH behaviors, using community-based approaches. However, there is a paucity of evidence on the impact continuity and sustainability of WASH interventions – specifically sanitation coverage.

WASH sustainability is complex and challenging to measure, with mixed evidence of impact after a program has concluded and external actors exit from beneficiary communities (Taylor, 2013). Until recently, ex-post evaluations were not often funded, making it difficult for program and policy stakeholders in WASH to effectively learn, contextualize, and adapt interventions to ensure sustainability. Despite decades of evidence demonstrating WASH intervention effectiveness, some studies by development organizations, academic, and government institutions highlight sustainability challenges over time, with program impacts and effects diminishing following program closure (Taylor, 2013).

More recently, USAID commissioned its WASH Ex-Post Evaluation Series: six ex-post-program evaluations across sizable integrated WASH projects supported by the agency spanning Madagascar, Indonesia, Ethiopia, India, Senegal, and Mozambique. The results of this evaluation series are consistent with the literature; regardless of significant WASH advancements and achievement during programming, most impacts are not sustained in the long term. The series cites reductions in basic latrine ownership, discontinuation of handwashing practices, and communities engaging again in OD despite being triggered with community-led total sanitation (CLTS) and certified as ODF (USAID, 2020).

In Zimbabwe, where only 68% of the population has access to improved sanitation, OD rates exceed 21%, and nearly 29% of people are drinking from unimproved water sources (ZIMSTAT & UNICEF, 2019). However, after significant investment from the donor and international community, evidence suggests the outcomes of these efforts may not be sustained over time. Sustainability research in Zimbabwe shows numerous water points falling into disrepair after stakeholders exit and handover maintenance and governance to community-managed structures (Hoko and Hertle, 2006; Madziyauswa, 2018). Evidence also points to limited adherence to practices from WASH promotion activities (Hoko and Hertle, 2006; Madziyauswa, 2018).

The present sustainability study aims to build on the literature by evaluating the state, functionality, reliability, and management of WASH infrastructure, levels of sustained behavior change, and factors that may influence sustainability four years after the program ended. This evaluation will add to the growing body of ex-post-program studies and illuminate practical lessons learned and recommendations.

Background

Lack of proper infrastructure to control human waste and wastewater is a significant contributor to numerous outcomes of public health concern. WASH inadequacies and OD lead to the spread of diarrheal disease, undernutrition, childhood stunting, and other water-borne illness unique to impoverished communities in the global south (Andersson et al., 2016; Bartram & Cairncross, 2010; Dickin et al., 2017; Walker et al., 2013; Prüss-Ustün et al., 2014). Nearly 700 children under the age of five die daily from diarrheal disease due to inadequate WASH (UNICEF, n.d.).

The public health implications of poor water and sanitation disproportionately impact women and girls. For example, in these environments, lack of access to safe and functional sanitation facilities increases the risk of violence and psychosocial stress among women and girls (Dickin et al., 2017; Kwiringira et al., 2014; Mara, 2017; Sahoo et al., 2015). Menstrual hygiene management and harmful social norms continue to present challenges for women and girls as well. A jointly commissioned report by UNICEF and WHO (2021) shows that “a significant proportion of women and girls do not have the services they need for menstrual health and there are often substantial disparities between population sub-groups” (p. 11).

In Zimbabwe, economic crises between 2000-2009 profoundly impacted its capacity to address WASH challenges in-country. Lack of investment limited advancement toward national goals pertaining to safe water and sanitation access (UNICEF, n.d.). According to Ahmad et al. (2017), the economic downturn resulted in limited capacity of government stakeholders to manage aging water and sanitation infrastructure and expand WASH services. Between the mid-1990s and 2015, water supply and sanitation infrastructure and services declined, negatively “affecting all parts of the country and all aspects of water supply and sanitation services provision, and water resources management and development. This has had a significant impact on the quality and reliability of services” (Ahmad et al., 2017, p. 1).

The ramifications of the economic crisis and deterioration of WASH services had significant public health implications, with the related 2008-2009 cholera outbreak of Zimbabwe resulting in over 4,200 lives lost and more than 98,000 cases (Ahmad et al., 2017). Substantial multi-million-dollar investments were allocated to the WASH sector by the NGO and broader donor community to address the mounting WASH challenges following the 2000s economic decline. One of these projects was the CWP – the focus of this ex-post-program evaluation.

Chivi District Profile

Chivi district is a rural area of Zimbabwe situated within Masvingo province. Its harsh climate and terrain, characterized as semi-arid, mountainous, and with poor soil quality, is subject to unpredictable rainfall, drought, and lack of access to safe water (Raphael, 2013; Chitsika, 2016; Madziyauswa, 2018) (Figure 1). As a result, the population largely lives in a profound state of poverty, with many relying on communal farming as a primary livelihood (Mudzonga, 2002; Madziyauswa, 2018). Despite the unique needs of Chivi district, it was the only district within Masvingo province not part of a $62 million four-year (2012-2016) Rural Wash Program led by the Government of the United Kingdom, Swiss Agency for Development Cooperation, and UNICEF. Given this coverage gap, and the WASH needs of the district, CARE Zimbabwe and district stakeholders selected Chivi to implement what is now known as the CWP.

Figure 1. Map of Chivi district within Masvingo province, Zimbabwe (Raphael, 2013; Chitsika, 2016; Madziyauswa, 2018).

CARE's Chivi Wash Project (CWP)

In response to WASH inadequacies in Zimbabwe, CARE implemented a project across 230 villages (population size of 10,303 HHs, 51,923 people) in 10 wards located in Chivi North district between 2014 – 2017. The project's goal was to have sustainable and equitable access to water and sanitation service for all, specifically women and girls, and increase practice of key hygienic behaviors among the rural population of Chivi district (Figure 1). CWP incorporated the most essential aspects and stakeholders of an "ideal" WASH program that promote sustainability. The framework below demonstrates this: influencing demand, incorporating women, increasing the supply chain for fixing water points and building latrines, providing financing options for HHs and feedback mechanisms for users, improving clarity on roles of water committee members, strengthening governance and addressing natural resources management (Figure 2).

The CWP incorporated the SaFPHHE method, since the GoZ adopted this as its strategy in 2013. CLTS methods are central to the strategy – including triggering and the use of "shame" to motivate people to end OD, conducting a community "shit calculator" and transect walk to discuss defecation sites. SaFPHHE incorporates "post-triggering" plans such as Community Development Plans, school and community health clubs (CHCs) and SAGS – all with the overarching goal of community participation in developing a plan for reducing OD and sustaining latrine use (2013 Training of Trainers Manual). The GoZ also promotes the construction of the Blair Ventilated Improved Pit Latrine (BVIP), which is a semi-permanent structure that is "upgradable," meaning that as HHs get more resources, they can continually improve the latrine. A challenge to achieving latrine coverage is that many HHs cannot afford ideal latrines, but do not like unimproved ones. The BVIP attempts to address that.

Table one outlines the major intervention areas and outputs of the project. While the project was implemented by CARE via field officers, interventions were delivered in partnership with the District Water Supply and Sanitation Sub-Committee (DWSCC). At the ward level, government extension workers and CWP staff comprising the Ward Water Supply and Sanitation Sub-Committee (WWSSC) brought the project interventions to the 230 villages (CARE, 2017).

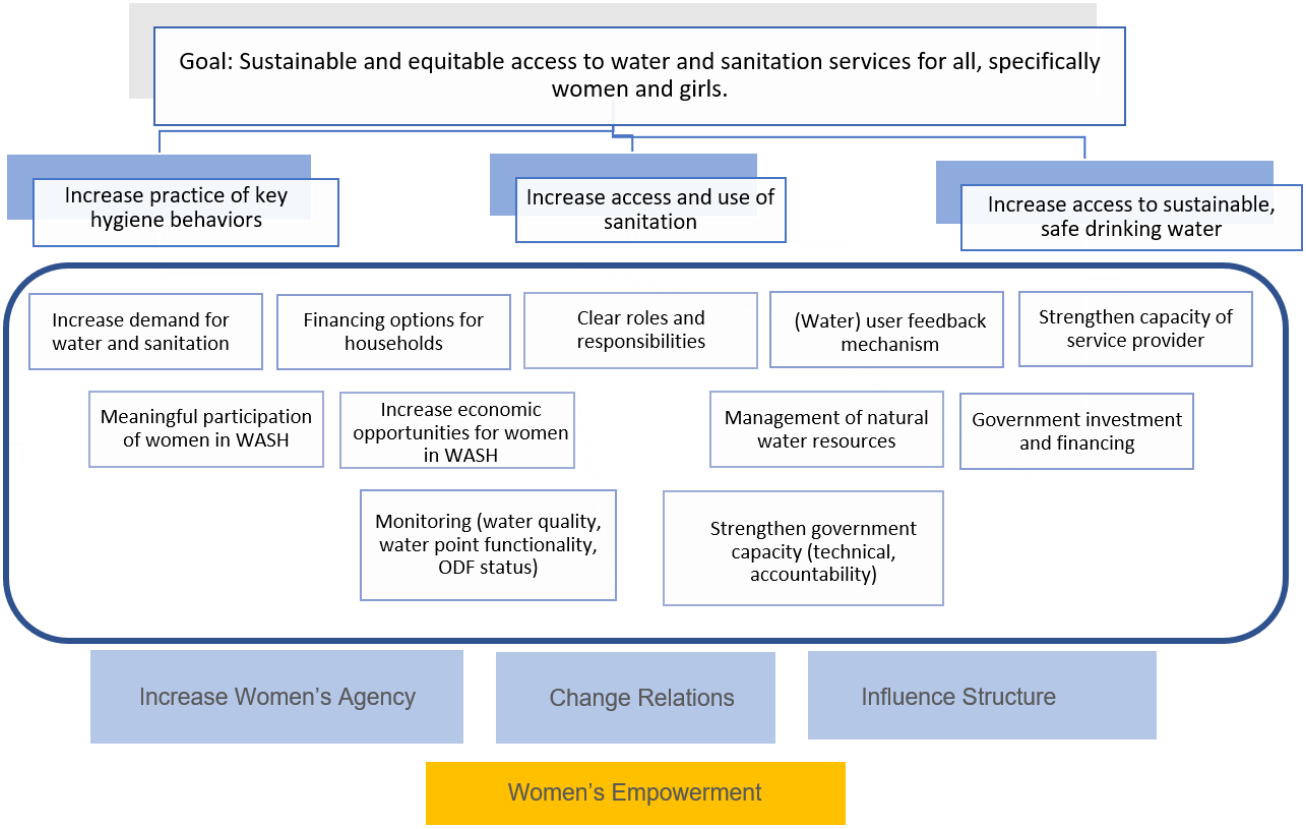

Figure 2. Chivi WASH Project conceptual model, Chivi district, Zimbabwe, 2014-2017.

Various community groups led the different WASH services and project interventions. Within the villages, the triggering process was led by the WWSSC. Follow-up awareness-raising activities were charged to the SAGs, comprised of volunteers or community members nominated by the community. The SAGs then led supervision and oversight of sanitation activities within their respective communities. It is important to note that community members trained on toilet construction (latrine masons or LMs) carried out local implementation of sanitation infrastructure for a fee, a key element of the SaFPPHE approach (CARE, 2017). Regarding water service management, WPCs consisting of community volunteers oversee and facilitate borehole maintenance and repairs. Repairs were performed under the technical expertise of project trained VPMs (CARE, 2017).

Table 1. Chivi WASH Project detailed interventions, Chivi district, Zimbabwe, 2014-2017.

Objective	Intervention	Output
Sanitation & Hygiene: • Increase sanitation coverage in schools and communities. • Motivate communities to achieve ODF status.	• Train extension workers and ward-level project facilitators on SaFPHHE: responsible for implementing the SaFPHHE approach and triggering all 230 villages. • Formation, and training SAGs to facilitate sanitation and hygiene awareness and promotion activities at the village level and create Community Health Clubs (CHCs). These clubs constituted volunteers who further provided WASH information to community members	• Triggered all 230 project villages across 10 wards. • 133 villages achieved ODF status (certified by DWSSC) by the project endline evaluation. • Trained 66 extension workers and ward-level facilitators on SaFPHHE (39m, 27f). • 230 SAGs formed through CARE technical support and training (483m, 1127f).

	and pooled resources to assist with the establishment of HH sanitation infrastructure.	• SAGs supported the establishment of 65 Community Health Clubs • Provided 1,650 community members with technical assistance and/or subsidies (cement and wire) for self-built latrines[5]. • Hygiene and basic sanitation promotion activities reached 46,227 people.
Water Service Provision: • Increase access to safe water services for schools and communities.	• Construction and rehabilitation of boreholes in 10 wards of Chivi District. • Test water quality on both new and rehabilitated/repaired water points.	• Drilled 21 new boreholes and tested water quality. • Rehabilitated or repaired 161 water points and tested water quality. • Provided access to safe water for 50,377 people.
WASH Capacity & Governance • Strengthen systems of accountability for water and build sustainable technical support for communities to maintain water and sanitation infrastructure.	• Establish WASH committees to ensure communities and institutions are responsive to WASH needs, especially those of women and girls. • Establish and/or support WPCs responsible for maintaining community water points. • Capacity building of local artisans, like VPMs and latrine builders. These artisans were trained to provide privatized construction and maintenance services for boreholes and latrines to communities. • Train and empower women to repair boreholes and build latrines.	• Established 22 new WPCs. • Strengthened 184 WASH committees. • Trained 998m and 2,327f in WPC principles. • Trained 29 VPMs (13m, 16f). • Trained 80 latrine builders (33m, 47f).
Gender Equality & Women's Empowerment: • Create space for women to participate fully on community WPCs and SAGs. • Increase capacity of local government committees in understanding the importance of gender considerations and intentional inclusion in WASH interventions.	• Led discussions and activities which highlight and challenge inequitable power dynamics existing between men and women.	• 70% of SAG members were women. • 96% of CHC members were women. • At least 70% of WPC members were women. • 55% of VPMs and 58% of latrine builders trained were women.

[5] Subsidies were only given to a few vulnerable HHs, selected by the villages, with the rest expected to use their own resources for latrine construction.

CWP Impact Evaluation (2017)

CWP (2014-2017) successfully achieved or exceeded the project's objectives and targets (Table 2). For instance, because of the triggering process via SaFPHHE, there was about a 40% decrease in HHs reporting OD and almost a 48% increase in HHs reporting having a toilet. In 2017, evaluation results showed that 133 villages supported by the project had been certified as OD - 58% of the total villages triggered. A follow-up assessment by district government officials later that year certified 170 project villages, 74% of total villages triggered, ODF (CARE, 2017).

In addition, about 25% more HHs reported access to drinking water from an improved source (Table 2). Evaluation results also estimated that more than 40,000 people were provided access to sanitation facilities, both self-built and subsidized facilities, as a part of the project. While subsidies in the form of construction materials like cement were provided by the project, only a few of the most vulnerable HHs received this intervention, with most expected to construct the latrines using their own resources.

Evaluation results showed that women made up 70% of SAG members, facilitating the implementation of sanitation and hygiene programs in their villages. The high-level of women's involvement in SAGs is an indication that the program's gender equality approaches successfully drove greater representation of women in community-led WASH efforts (CARE, 2017).

Lastly, the project facilitated behavior change across the population, with a near 77% increase in survey respondents demonstrating correct handwashing methods during the five critical handwashing times promoted by the project. These times include after using the toilet, after attending to a child who has defecated, before preparing food, before feeding a child, and before eating (Table 2). There were also improvements in HH water storage, with an 83% increase in HHs reporting using safe water storage methods like using lids or covers to decrease water contamination. These combined results likely contributed to improved health outcomes, including a 22% reduction in point-prevalence of reported HH diarrhea (Table 2) (CARE, 2017).

Table 2. Select Chivi WASH Project results, Chivi district, Zimbabwe, 2014-2017.

Key Indicators	Baseline (N=356)	Endline (N=396)	% Change
HHs report drinking water from an improved source	69%	94%	(+) 25%
HHs report practicing OD	41%	1%	(-) 40%
HHs report having a toilet	49%	97%	(+) 48%
HHs report diarrhea cases in the last week	27%	5%	(-) 22%
HHs use safe water storage methods	7%	90%	(+) 83%
Survey respondent demonstrates correct handwashing method	13%	90%	(+) 77%

Evaluation Purpose, Rationale, & Significance

As demonstrated by the results of the final impact evaluation, CWP contributed to substantial WASH-related impacts and behavior change within Chivi district. According to project documents, government stakeholders from all levels—including national, ward, district, and village—were actively involved in the project from intervention design to implementation, monitoring, and evaluation. CARE (2017) cites the participation of community members from all backgrounds and resource levels as vital to increasing project understanding, acceptance, and awareness of the individual and communal benefits of improving WASH practices and infrastructure. However, despite these notable project impacts, one of the recommendations stemming from the final impact

evaluation report is the need for ex-post evaluation to understand better what structures, interventions, processes, and behaviors are sustained in the long-term.

For instance, while the CLTS method (a major part of SaFPHHE in Zimbabwe) and broader WASH efforts have demonstrated success in some contexts, several reports indicate a tendency for villages to revert back to OD, with recidivism or slippage rates in Africa often between 9-31% (Abebe & Tucho, 2020). At the same time, infrastructure, such as latrines and water points, sometimes fall into disrepair (UNICEF, 2015). The literature cites several challenges to latrine maintenance and continued use including quality of latrine construction, flooding, sandy soil, accessibility and affordability of materials and labor, availability of water, and limited capacity, resources, or knowledge on latrine repair and maintenance (Mosler et al., 2018; Whittington et al., 2020). According to Mosler et al. (2018), “It is not uncommon for people who were using latrines to abandon damaged, collapsed, and full pit latrines and return to open defecation” following years of CLTS and program implementation (para. 4).

For water points, the onus of maintaining and managing boreholes and handpumps by communities, with minimal outside support, often creates barriers to effective community-led maintenance and sustainability of water supply post-project (Harvey & Reed, 2003). Sustainability research shows that communities and respective community-based water management bodies often do not have a complete understanding of the level of efforts, finances, and other requirements necessary to ensure water service sustainability (Harvey & Reed, 2003). Furthermore, affordability and procurement of spare parts for handpumps also influence water service sustainability (Harvey & Reed, 2003). These combined factors play a significant role in shaping water service sustainability and as a result, community-managed water supply facilities often fall into disrepair after external stakeholders have exited the community and once the pumps require maintenance or repair (Harvey & Reed, 2003).

This evaluation assesses the sustainability of CWP’s impacts more than four years after the program's end and aims to understand to what extent WASH behavior change, infrastructure, governance and gender equity, have been sustained. These evaluation findings are essential for advancing understanding of WASH program sustainability and increasing the quality of WASH programs.

Definition of Terms

Sustainability in this evaluation concerns ex-post-program outcomes and “whether the effects of the program continue beyond the period of donor input… [it concerns] the adaptive capacity of a given WASH system to cater for the needs of its target beneficiaries” (Taylor, 2013. p. 4). Regarding WASH infrastructure, including latrines, boreholes, and other hardware, this evaluation looks at social sustainability; this is defined as the social systems and supports that facilitate the continued maintenance and use of WASH infrastructure (Kaminsky, 2014). This evaluation examines the reliability and functionality of WASH infrastructure as well.

Sustainability

Sustainability in this evaluation concerns ex-post-program outcomes and “whether the effects of the program continue beyond the period of donor input… [it concerns] the adaptive capacity of a given WASH system to cater for the needs of its target beneficiaries” (Taylor, 2013. p. 4).

For water points, reliability is defined as continuity of water supply – the extent water is provided without interruption, regardless of seasonal effects and other impacts. In this evaluation, functionality for both HH latrines and water points refers to technical/operational functionality. Regarding water points, functionality is often defined as “working and protected” as opposed to being “completely broken or abandoned”, although is it not consistently defined nor measured using common metrics in the literature (Tincani et al., 2015, p. 47). Concerning latrines, functionality is defined as hygienically safe sanitation facilities, maintaining effective separation of human excreta from human contact (Jenkins et al., 2014).

Limitations

It is important to note the data collection process for this evaluation was performed during the COVID-19 pandemic and following incidences of flooding across certain areas of Chivi district. This may have influenced overall study outcomes, especially assessment of functional latrines, some of which may have been recently damaged. Additionally, this analysis was only performed on a subset of villages that were ODF certified by the government in 2017. These might represent high performing villages and show positively skewed sustainability outcomes. Raw data from baseline (2014) and endline (2017) could not be accessed, resulting in the comparison of aggregate data for the purposes of this research. This is a significant limitation as statistical application could not be applied between data sets.

The initial CWP had a large focus on increasing the role and participation of women in WASH and in building girl-friendly latrines and integrating menstrual hygiene curriculum in schools. Due to time and resource limitations, this study did not extensively explore the role of women and gender perspectives in the villages.

Methodology

Overview & Conceptual Methodology

This ex-post evaluation will assess 1) the extent to which WASH outcomes achieved through CWP have been sustained four years after the project and 2) how CARE's integrated program approaches/interventions influenced WASH sustainability across CWP villages. This study design draws on UNICEF's WASH sustainability framework (2018). This comprehensive framework outlines the pathways to sustainable WASH services, detailing the factors that influence sustainability and how to program for sustainability more broadly. The full framework document also includes a list of metrics and sustainability factors to consider as part of sustainability assessments. These metrics span 1) rural water supply at community/water point, local government, and service provider levels as well as 2) sanitation at community and support levels (Figure 4). The methodology proposed for measuring WASH sustainability as part of this evaluation was informed by this framework and its proposed metrics for assessing sustainability (UNICEF, 2018, p. 40-48).

In alignment with the evaluation objectives and the UNICEF WASH sustainability framework, eight evaluation questions were developed to deepen understanding of how integrated WASH interventions, gender transformative approaches, community-based management and governance structures, and institutional support have impacted WASH sustainability in Chivi district. These evaluation questions were also inspired by the USAID Ex-post WASH sustainability series (USAID, 2017; USAID 2019; USAID 2020). These evaluation questions include:

Sanitation & Hygiene

1. To what extent did CWP villages triggered with SaFPHHE sustain ODF status and latrine use after the end of the program?
    a. Did community-based structures like SAGs contribute to sustained sanitation outcomes?
    b. Have people maintained or upgraded their toilets/latrines in the last 1-5 years? Why or why not? What were their motivations/barriers for doing so?
2. To what extent are CWP beneficiaries still practicing hygiene behaviors (i.e. handwashing, safe water storage, water treatment, and proper human waste disposal) promoted by CWP?
    a. What factors may have influenced sustained behavior change?

Water

3. What is the current state of water service across CWP villages regarding functionality, accessibility, reliability, water quantity, and quality?
    a. To what extent have community-based structures and governance bodies (i.e. Water Point Committees) effectively managed water service?

WASH Capacity, Integration, COVID-19 & Gender

4. To what extent did CWP efforts to build local capacity for water point and latrine repair (via VPMs and LMs) lead to sustained capacity?
    a. Are these WASH entrepreneurs still in business and supporting community needs?
5. Is local and central government contributing to the functionality, reliability, and sustainability of WASH services post-project?
6. To what extent were the gender impacts achieved by CWP sustained?
    a. Are women continuing to participate and lead across the management and governance structures established by CWP?

    b. Do CWP communities express perspectives of gender equity?
7. How have WASH services in CWP villages been impacted by COVID-19?

The evaluation team (ET) addressed these evaluation questions using a **mixed-methods approach**, employing HH surveys, semi-structured interviews, and a formal desk-review of project documents and relevant secondary data to respond to each evaluation question. Regarding **quantitative** methods, 315 HH surveys administered across 29 CWP villages assessed demographic information including sex, education, age, gender, religion, ethnicity, and source of income. Demographic data were included to determine whether there were statistically significant differences in ex-post WASH outcomes between demographic variables. This could inform how WASH programs identify target beneficiaries and groups as well as the scope of program delivery for future interventions.

The HH survey also explored water service level indicators surrounding HH water sources, uses of water, water collection, "functionality, quality, quantity, accessibility, reliability, source switching/mixing, challenges, and other related questions" (USAID, 2020, p. 10). User experiences, satisfaction, and perceptions regarding water point management, maintenance, fees/affordability, community engagement, and accountability were also collected. These data respond directly to evaluation question three, providing insight into the use, state, reliability, and management of water service in CWP villages post-project, and the facilitators and barriers to water service management and sustainability. This data also allowed for direct comparison against the CWP endline data, where applicable, allowing the ET to define the level of change between endline and the ex-post-program evaluation. Also, as part of the water-specific survey component, the survey assessed HH behaviors regarding water treatment and safe water storage to understand the extent to which these practices continued beyond the end of CWP. This survey component illuminated whether HH behaviors around maintaining safe water, a core component of the CWP project messaging, were sustained.

Sanitation and hygiene level data were also collected as part of the HH survey, including 1) latrine use and sharing, 2) history of latrine construction, maintenance, upgrades, and financing, 3) user perceptions of latrine safety, 4) human waste disposal practices, and 5) knowledge of critical times for handwashing and other recommended hand hygiene practices. Inclusion of these data allowed the ET to assess key sanitation indicators, compare them against CWP endline data to determine whether there were significant changes four years later, and identify the facilitators and barriers to sanitation sustainability. This HH survey component was complemented by secondary data collection acquired by district officials regarding village-level ODF status. These data were used to determine the proportion of CWP villages that sustained ODF certification after the project endline. Observational data were also collected in the HH survey to assess HH latrine and handwashing station availability, usage, and functionality. For instance, handwashing facilities were observed for the presence of water and soap. These sanitation-level data supported the ET team in responding to evaluation question one.

To evaluate the level of sustained gender impacts on CWP, the survey also explored HH perceptions of gender roles, rights, and norms surrounding women and girls' education, menstruation, employment outside the home, leadership, mobility, and decision-making. Lastly, given this ex-post-program evaluation was performed during the COVID-19 pandemic, the study included questions regarding HH and community-level impact of COVID-19 to understand how the pandemic has impacted WASH outcomes and their sustainability. HH access to water and repair parts for water points and latrines was captured, as well as the impact of COVID-19 on gender dynamics, including women's ability to participate in community-level activities. The inclusion of this gender component goes beyond the scope of many published ex-post-program evaluations in the

WASH sector and will further strengthen CARE's gender transformation strategies. These components are aligned with and facilitated responses to evaluation questions six and seven.

Qualitative methods were also employed with various stakeholders at community, district, and ward levels to explain further and provide a complete understanding of the quantitative data collected from the HH surveys. Forty-nine (49) semi-structured interviews with WPC members, SAG members, WASH entrepreneurs, village heads, and district/ward WASH representatives were employed to deepen the evaluation analysis. The evaluator triangulated these data to ensure data validity and verify the results across multiple methods. Data from the semi-structured interviews responded to all eight evaluation questions.

Study Design

CARE collected both quantitative and qualitative data across 29 villages in Chivi district as part of this **ex-post program evaluation**. The **study population** included HHs within CWP project villages. These villages were randomly sampled from CWP villages that achieved ODF at the end of the project. The number of villages sampled was determined based on the available budget while also ensuring the broadest representation of CWP villages across all project wards (1-2 villages per day over 16 days). The main **inclusion criteria** for this evaluation were: 1) HHs in villages that benefited from CWP's WASH interventions and 2) HHs in villages that achieved ODF by the end of the project in 2017. The quantitative surveys were administered across 315 HH representatives in project villages using electronic data collection. Through tablets and smart phones, the survey was uploaded to KoboCollect and included open-ended questions as well as standard multiple-choice and yes/no questions (Appendix A). Only one survey respondent was included for each HH, with the preference being head of HH. If the head of HH was not available, another HH member was surveyed, providing key demographic information about the head of HH in their absence. The study also held 49 semi-structured interviews with key stakeholders, including 22 village heads/leaders, 12 WPC members, 6 SAG members, and 6 WASH entrepreneurs trained by CWP to maintain WASH infrastructure, specifically VPMs, as well as 3 district government officials (Table 3).

Table 3. Number of semi-structured interviews across stakeholders, Chivi district, Zimbabwe, March 2021.

No. KIIs	Village Heads	WPCs	District Government	VPMs	SAGs
Total: 49	22	12	3	6	6
Women: 18	1	8	0	3	6
Men: 31	21	4	3	3	0

Sampling Methodology

A multi-stage cluster methodology was employed during sampling. The first stage cluster included the selection of project wards for evaluation inclusion. Nine CWP supported wards were selected for inclusion in the study, including wards 1,2,3,4,5,7,8,10, and 15. Only one project ward (6), out of the ten project wards, was excluded from the study because it only has one CWP village. The second stage cluster involved the selection of villages from the nine selected wards. The third stage cluster employed a selection of HHs from the village HH list using a systematic random sampling method for the selection of around 12 HH in each village. The target sample size totaled 365 HHs calculated based on a population size of approximately 7,009 HHs spanning the nine selected wards, a 95% confidence interval, and 5% margin of error. However, the target number of HHs in each village was not reached consistently across all study villages during data collection due to community meetings and funerals that coincided with data collection dates in a subset of villages. As a result, 315 HH surveys were administered. For the qualitative component, purposive sampling was employed for budgetary and convenience purposes within the quantitative sampling frame.

Data Collection

Before the data collection process, respective stakeholders, including the District Development Coordinator (DDC), the President's Office, and community leaders, were informed of the study to facilitate understanding, buy-in, and broader support for the evaluation. The data collection team consisted of six enumerators and one research supervisor. The team was first trained on the electronic data collection tool and then participated in piloting the questionnaire. The survey questionnaire was then translated to local languages to accommodate those who were not fluent in English. After training, the team deployed into selected wards and villages in Chivi district to administer the survey questionnaire using tablets configured with KoBo toolkit. HH surveys were conducted between April 6 – 22, 2021, with data cleaning and preparing performed through May 2021.

Data Analysis

To determine whether CWP's WASH outcomes were sustained, a multi-level analysis was performed across the quantitative and qualitative data. Quantitative data were analyzed using IBM SPSS Statistics version 28. Most captured data were categorical and analyzed using descriptive statistics, including frequencies, proportions, and 95% confidence intervals (CI). For continuous and discrete data, means and standard deviations were computed. Standard WASH indicators including, but not limited to, use of improved latrines, access to a safe drinking water source, and presence of a HH handwashing station equipped with soap and water, were analyzed. Impacts of COVID-19 on water access, access to repair parts for latrines, improved water points, and the differential pandemic impacts on women in these communities were also assessed. These data shed light on the effects of COVID-19 on WASH sustainability in CWP villages. Given the gender transformative approach led by CARE, key gender indicators regarding women's decision-making, leadership, and participation in community structures were also evaluated.

Sustainability was measured by assessing the extent to which the WASH outcomes achieved by CWP were sustained between 2017 and 2021. Several indicators between the CWP endline report and this ex-post evaluation were compared. This occurred across data that were collected and calculated using similar approaches. Given lack of raw data from the CWP endline, these endline and ex-post data were compared at an aggregate level without statistical application. To further understand the interaction between variables, and potential sustainability predictors, the evaluator applied statistical tests across sample groupings where appropriate, including by ward, and demographics of HH head including gender, educational attainment and age. To determine the relationship between variables, a chi-square test of independence (χ^2) was performed across the evaluation. A Fisher's Exact Test (FET) was applied when more than 20% of cells had expected frequencies less than five (Kim, 2017, p. 154). For the qualitative data, MAXQDA was used to identify common themes across transcribed data from the semi-structured interviews for triangulation and integration of the results.

Communication & Dissemination Plan

The evaluation results were shared at stakeholder interpretation meetings in November 2021 to discuss overall findings (Table 4). During these meetings, stakeholders were informed of evaluation findings and requested to share feedback on evaluation results and recommendations; and discuss next steps. This feedback was later integrated into the evaluation report. This was critical step in justifying the conclusions of the evaluation and creating transparency for the process.

In early 2022, CARE will hold a global webinar for the NGO and donor community to share lessons learned around WASH sustainability in Zimbabwe, promoting learning and sharing within the sector.

The findings will also be shared with the public through sharing (this) final report online and with the evaluation funders, The Bill and Melinda Gates Foundation. CARE will also develop a complementary peer-reviewed manuscript for publication. This manuscript will provide a secondary analysis that will expand on the findings of this evaluation, exploring the determinants and predictors of WASH sustainability in the context of CWP.

Table 4. Communications and dissemination plan for the CWP sustainability evaluation.

Purpose of Communication	How?	When?
Present findings	Stakeholder interpretation meetings, briefing	November 2021
Locally relevant discussions in 10 wards	Stakeholder meetings	November 2021
Internal webinar for CARE to present findings of CWP Ex-post	Zoom	November 2021
Document the evaluation and its findings – share with stakeholders	Email	December 2021
Draft a peer-reviewed publication on sanitation and water sustainability (secondary analysis)	Email, publication online	December – April 2021
Global Webinar for NGOS and Donors with a stake in WASH	Zoom	January 2022
Formal event at Chivi district and national level in Harare, Zimbabwe	TBD (pending COVID situation)	February 2022

Ethics & IRB

HLM IRB, a research ethics service used by UNICEF, The World Bank, and others, reviewed the study protocol and tools and granted ethical approval for this study in March 2021. Enumerators were trained on ethical research methods and obtained informed consent before data collection. All personal data are kept private and confidential.

Quantitative Results

Sample Demographics

Of the 315 HHs sampled from nine project wards across 29 villages in Chivi district, the mean age of HH head was 58 years old, ranging between 18 and 100. Over half (58.6%) of the sampled HHs were male headed (58.4%). Most HH heads attained secondary education (54.9%), followed by primary education (24.4%), and no formal education (16.2%). Less than 3% of the sample reported HH heads with college or university level education. Nealy all reported Christianity as the main HH religion (99.7%), with only one HH (0.3%) following African or traditional religion. Primary HH income sources included farming (41.3%), casual labor (23.2%), remittances (20.0%), pension (5.7%), formal employment (5.1%), and buying and selling (3.5%). The mean HH size reported was 5.3, ranging between 1 and 15 (Table 5).

Table 5. Summary statistics of sample demographics, Chivi district, March 2021.

Variable		n N=315	%
Gender of HH Head	Female	131	41.6
	Male	184	58.4
HH Income Source	Buying and selling	11	3.5
	Casual labor	73	23.2
	Farming	130	41.3
	Formal employment	16	5.1
	Other	4	1.3
	Pension	18	5.7
	Remittances	63	20.0
HH Religion	Christianity	314	99.7
	Traditional/African Traditional	1	0.3
Education of HH Head	College or University	9	2.9
	No formal education	51	16.2
	Primary	77	24.4
	Secondary	173	54.9
	Vocational school	3	1.0
	Do not know	2	0.6
Variable	**Summary Statistics**		
HH size	Mean		5.3
	95% CI for Mean		5.1 - 5.6
	Std. Error of Mean		0.13
	Std. Deviation		2.3
Age of HH Head	Mean		58.0
	95% CI for Mean		56.3 - 59.7
	Std. Error of Mean		0.86
	Std. Deviation		15.3

Sanitation

Latrine Use & Ownership

Most HHs reported using either a BVIP single squat (27.3%) or BVIP double squat (23.5%). Upgradable BVIP (uBVIP) single and double squat facilities were used among 12.7% and 9.5% of HHs respectively, with remaining HHs using pit latrines (19.0%) or using no facility, a bush, or a field (7.9%) (Table 6). It is not known whether HHs use more than one latrine or if they share a latrine with other HHs. The CWP endline reported between 0-1.0% of sampled HHs using a bush/field by the end of the project, compared to 7.9% captured ex-post (Figure 3) (CARE, 2017). Conversely, district-level ODF certification data suggests of the villages sampled, just 27.6% (8/29) of those ODF certified in 2017 remained so through 2021; similarly, across the project, 25.9% (44/170) of all

villages certified as ODF in 2017 remained certified at the time of this study (DWSSC, 2017; DWSSC, 2021). Explanations for this discrepancy are explored further in the discussion.

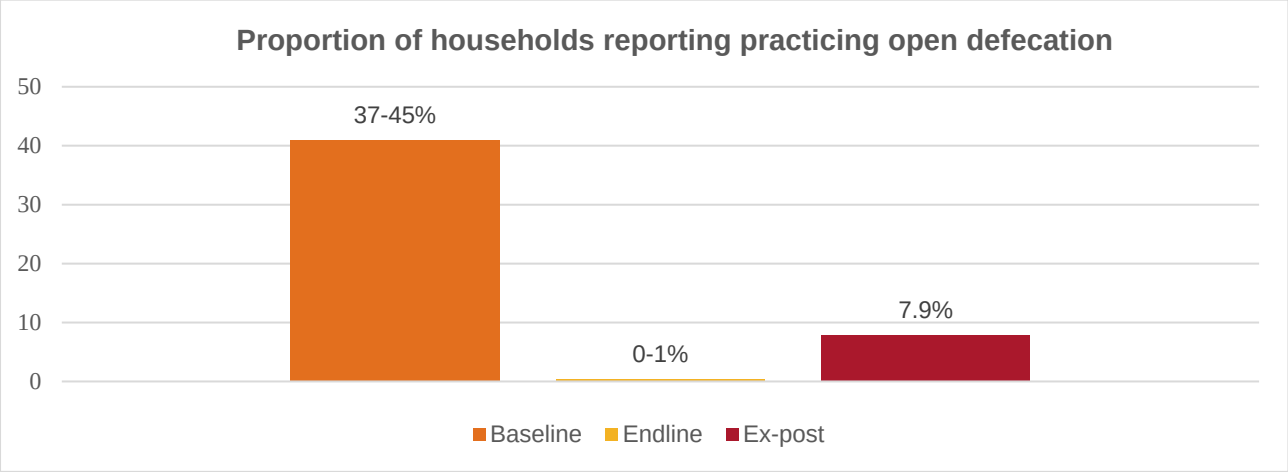

Figure 3. Comparison of self-reported open defecation across baseline (2014), endline (2017), and ex-post program (2021), Chivi district, Zimbabwe.

No statistically significant association was found between OD – HHs reporting using a bush, field, or no facility – and ward (FET p=0.133) or educational attainment of HH head (FET p=0.602). However, significant associations between OD and age of HH head (FET p=0.012) as well as gender of HH head (χ^2 p=0.018) were found. HHs headed by individuals under 40 years of age reported higher proportions of OD; specifically, 22.2% of HHs headed by individuals between 30-39 years of age reported OD, compared to 6.7% of HHs headed by individuals 40-49, 4.6% of HHs headed by individuals 50-59, 7.8% of HHs headed by individuals 60-69, and 4.3% of HHs headed by individuals 70 and older. Similarly, HHs headed by women reported higher proportions of OD defecation (12.2%) compared to HHs headed by men (4.9%).

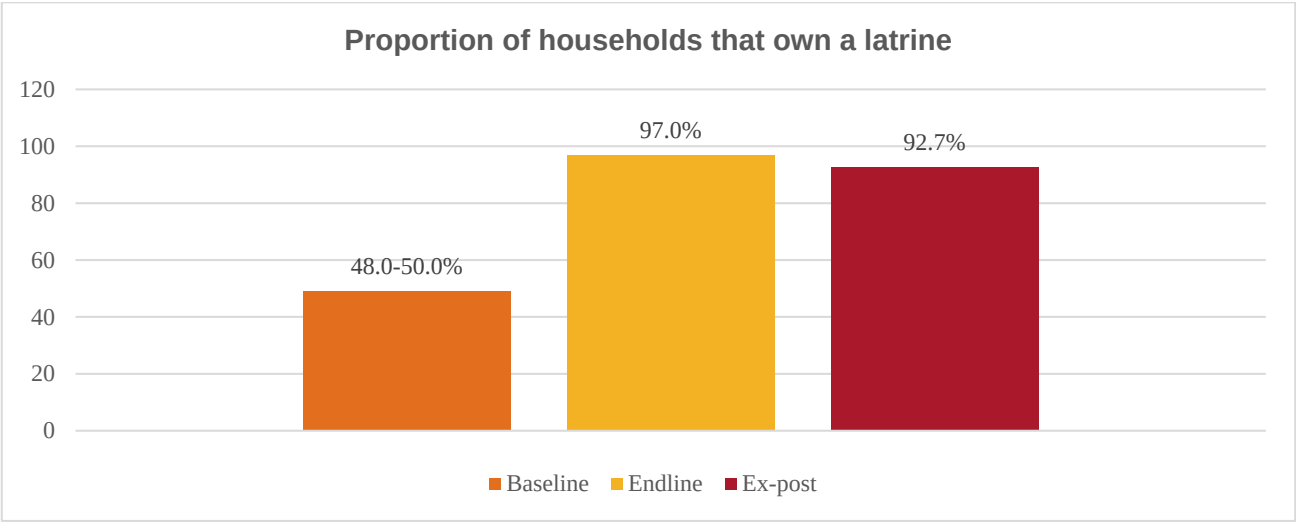

Figure 4. Comparison of household latrine ownership (both improved and unimproved) across baseline (2014), endline (2017), and ex-post (2021), Chivi district, Zimbabwe.

Across the sample, 73.0% reported using an improved latrine versus 27.0% using an unimproved latrine or openly defecating (Table 6)[6]. Ninety-two percent of HHs (92.1%) reported using a basic

[6] Improved latrines were defined as uBVIP single/double squat or BVIP single/double squat facilities. In this context, pit latrines, no facility, bush, or field and other were all considered unimproved.

latrine[7]. Observational data collected by study enumerators generally supported these data, showing that 91.4% of all HHs had latrines showing signs of use, with 1.3% of latrines appearing to not be used and 7.3% of HHs having no latrine at all. Looking across evaluations, the CWP endline reported 97.0% of HHs having their own latrines, with the ex-post reporting a small decrease to 92.7% of HHs (Figure 4). (CARE, 2017, p. 39). No statistically significant associations between improved latrine use between wards (χ^2 p=0.770), gender of HH head (χ^2 p=0.095), educational attainment of HH head (FET p= 0.273), or age of HH head (FET p=0.158) were found. However, there was an association between improved latrine use and HH income source (FET p=0.020). HHs with a primary income source of casual labor and remittances reported higher proportions of unimproved latrine use compared to the other income sources, 38.4% and 28.5% respectively.

Table 6. Types of sanitation facilities used by households, Chivi district, Zimbabwe, March 2021.

Variable		n	%	Std. Error	95% CI	
		N=315			Lower	Upper
What kind of toilet facility do members of your HH usually use?	BVIP single squat	86	27.3	2.4	22.2	31.7
	BVIP double squat	74	23.5	2.3	19.0	27.9
	Pit latrine	60	19.0	2.2	14.9	23.2
	uBVIP single squat	40	12.7	1.9	9.2	16.5
	uBVIP double squat	30	9.5	1.6	6.7	13.0
	No facility: bush/field/other	25	7.9	1.5	5.1	11.1
HH latrine use: Improved and Unimproved	Improved	230	73.0	2.4	67.9	77.5
	Unimproved	85	27.0	2.4	22.5	32.1

Nearly all HHs self-financed, either fully or partially, their toilet construction. Almost half (44.8%) reported latrines were self-constructed by HHs alone, with 2.2% jointly constructed by two HHs. Others constructed a significant proportion of latrines at a cost to the HH, including latrine masons (42.2%). NGOs or government constructed a small proportion at a shared cost (2.2%), including the external provision of materials (Table 7). Less than half were built before 2014 (42.8%), with 44.8% built during the project period (2014-2017), and 12.4% built after the project ended. Reported motivations for building latrines included greater awareness from/response to WASH, NGO, donor projects and programs, personal interests including personal hygiene and sanitation, avoiding OD, and community pressure.

Table 7. Toilet construction, Chivi district, Zimbabwe, March 2021.

Variable		N	%	Std. Error	95% CI	
		N=315			Lower	Upper
Toilet constructed by:	My HH	141	44.8	2.8	39.0	50.2
	My HH and another HH	7	2.2	0.8	1.0	3.8
	Constructed by other at no cost to this HH	2	0.6	0.5	0.0	1.6
	Constructed by other at a cost to this HH	133	42.2	2.7	36.5	47.6
	Constructed by other at a shared cost	7	2.2	0.9	0.6	4.1
	No latrine	25	7.9	1.5	5.1	11.1

The mean distance reported from toilet to HH was 18.0 meters. When asked if the HH has a separate toilet facility for males and females, 38.7% reported having gender-separate facilities. To assess perceptions around toilet safety, respondents were asked if they felt safe going to the toilet at night. Of those surveyed, 90.8% reported feeling safe going to the toilet, or area used as a toilet, at night. While only 9.2% of respondents reported not feeling safe, the majority (79.3%) were women. Although there was no notable difference between perceived safety at night and ownership

[7] Basic latrines include pit latrines, uBVIP and BVIP latrine.

of an improved latrine, there was a statistically significant difference in perceived safety at night between HHs with and without any latrine (improved or unimproved). Those with no latrine were more than five times as likely to feel unsafe toileting at night compared to those with a latrine. Respondents that did not feel safe reported the following reasons: no lighting, no toilet, far from house, fear of snakes, fear of ghosts, toilet collapsed due to rain, and sharing the toilet with a neighbor.

Latrine Maintenance & Upgrades

Of HHs that reported owning and using a latrine (n=290), 1.0% reported performing maintenance in the last year. Seventy percent (70.7%) reported that maintenance was not needed, while 28.3% reported maintenance was needed but not performed. Regarding maintenance on HH latrines in the last five years, 1.4% reported having performed maintenance. Seventy-two percent (72.4%) reported not needing maintenance, while 26.2% reported maintenance was needed but not performed. When asked if upgrades were done in the last year, for example from a uBVIP to a BVIP, less than 1% of HHs (0.7%) reported upgrading their latrine. Sixty-eight percent (68.6%) reported upgrades were not needed, while 30.7% reported upgrades were needed but not done. Similarly, over the last five years, less than 1% of HHs (0.3%) reported upgrading their latrines, with 70.3% reporting upgrades were not needed, and 29.3% reporting upgrades were needed but not done. However, pit latrines and improved latrines such as the uBVIP and BVIP require emptying of the septic pit once full and occasional repair of the slab, lid, seat, or superstructure (WHO, n.d., p. 107-110). The HH questionnaire defined maintenance as “repairs needed for toilet functionality.” Given this framing, it is possible that respondents did not fully understand the question or consider emptying their pits as maintenance. Regular maintenance such as cleaning the drop hole, seat, handle of lid, slab, and superstructure to remove any excreta/urine was also not considered maintenance per the questionnaire which could explain the low reported maintenance as well (WHO, n.d., p. 107-110).

Hygiene

Handwashing

Over thirty-four percent (34.6%) of survey respondents reported “always washing their hands with soap.” Although a different indicator and not comparable directly, at CWP endline, 90.0% of survey respondents *demonstrated* correct methods of handwashing (compared to 10-15% at baseline). The ex-post evaluation revealed a statistically significant relationship between age of HH head and “always washing hands with soap” (FET p=0.004). For instance, HHs headed by individuals 59 and younger showed higher proportions of respondents always handwashing with soap compared to HHs headed by individuals 60 or older. Despite more than a third of respondents reporting always washing their hands with soap, enumerators observed soap next to a functional handwashing facility (defined as being equipped with water) within 10-15 meters of the toilet in only 1.9% of HHs; 14.6% of HHs were observed to have a functional handwashing facility within 10-15 meters of the toilet but were without soap (Table 8). Self-reported handwashing bias has also been recognized in the wider literature as a result of several factors, including social desirability responding (an “individual’s tendency to respond in a socially desirable manner”), “the need to conform to social standards”, recall error, and cognitive dissonance (Contzen et al., 2015, p. 3).

There was a significant association between presence of a functional handwashing facility and ward (FET p=0.001). Enumerators observed the highest levels of HHs without handwashing facilities in wards 4 (91.7%), 8 (71.8%) and 10 (81%) and the highest levels of handwashing facilities without water in wards 2 (27.1%), 7 (24.1%) and 15 (30.6%). HHs in ward 5 were observed to have the highest levels of handwashing facilities equipped with soap and water, 8.0% compared to 1.9% across the sample. At CWP endline, handwashing facilities with soap and water were observed in 87.0% of HHs (CARE, 2017).

Table 8. Observations of handwashing facilities equipped with water and soap, Chivi district, Zimbabwe, March 2021.

Variable		n	%	Std. Error	95% CI	
		N=315			Lower	Upper
Handwashing with soap at critical times	Always	109	34.6	2.6	29.5	39.4
	Sometimes	196	62.2	2.7	57.1	67.3
	Never	10	3.2	1.0	1.3	5.1
Handwashing facility within 10-15 meters of toilet facility	Yes, HW facility w/ water and soap	6	1.9	0.8	0.6	3.5
	Yes, HW facility w/ water	46	14.6	2.0	10.8	19.0
	Yes, HW facility but no water	53	16.8	2.2	12.7	21.3
	No HW facility	210	66.7	2.7	61.0	71.7

Respondents were asked to identity the five critical times for handwashing promoted by the project. Overall, levels of knowledge and/or practice have increased since the CWP endline. While only 13.3% of respondents accurately identified all five critical times for handwashing, most reported practicing handwashing before eating (96.8%), after defecating (95.6%), and before cooking (69.5%). Regarding handwashing before eating and after defecating, these results are consistent with the CWP endline evaluation which reported 94.0% of survey respondents handwashing before eating and 95.0% handwashing after defecating. Proportions of respondents reporting practicing handwashing before cooking, before feeding children, and after changing a diaper were higher during the ex-post evaluation compared to endline (Figure 5) (CARE, 2017). No CWP baseline data were reported for handwashing before feeding a child and after changing a diaper. There was no significant association between knowledge of critical times for handwashing and gender of HH head (χ^2 p=0.606), ward (FET p=0.168), educational attainment of HH head (FET p=0.842), HH income source (FET p=0.169), or age of HH head (FET p=0.114).

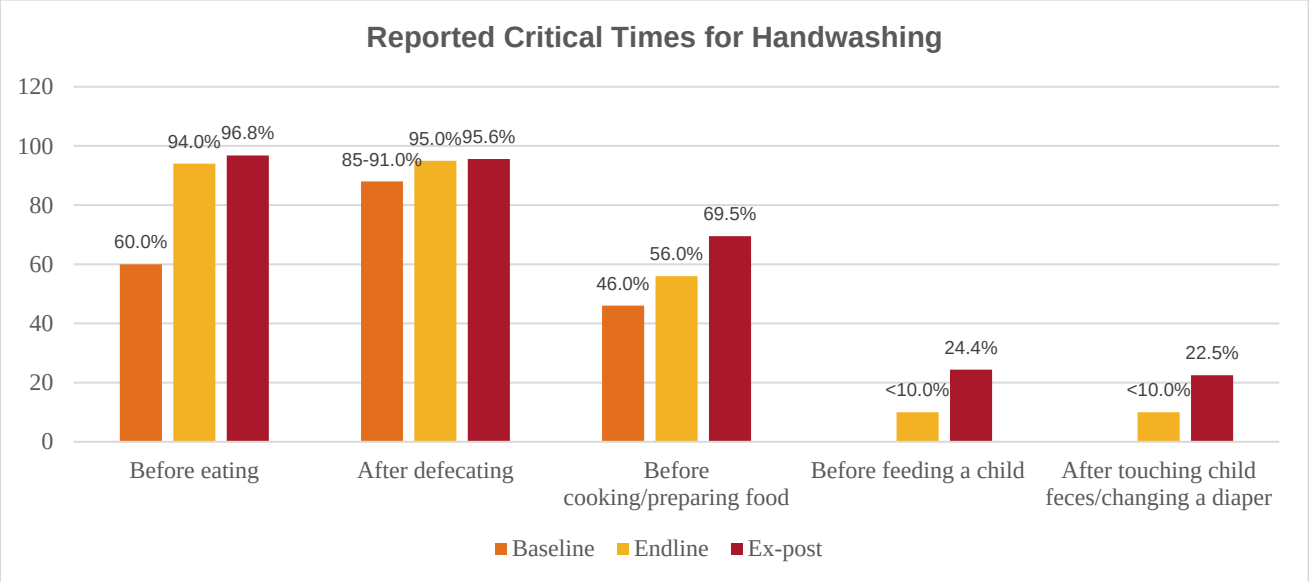

Figure 5. Reported practice of critical times for handwashing across baseline (2014), endline (2017) and ex-post (2021), Chivi district, Zimbabwe.

Water

In 2021, the most common main source of drinking water reported was a communal borehole/public tap (67.6%). At CWP endline this was 81.0%. Over fifteen percent (15.6%) of HHs reported using unprotected surface water for drinking, compared to about 6.0% at CWP endline (Table 9). Of sampled HHs, 79.4% reported using an improved water source for drinking (defined as a community protected shallow/deep wells, HH protected borehole/well, communal borehole/public tap, and piped water into dwelling) compared to about 94.0% at CWP endline (CARE 2017). Unprotected surface

water and unprotected HH family wells were considered unimproved. However, reported access to improved drinking water was significantly higher among old wards (85.7%), wards that received a longer implementation period and additional water interventions, compared to new wards (75.1%) (p=.023). This finding is consistent with the endline evaluation, which suggested that HH in old wards had greater access to water because they received more water interventions, including drilling of new boreholes, which CWP did not do in new wards (CARE, 2017, p. ii).

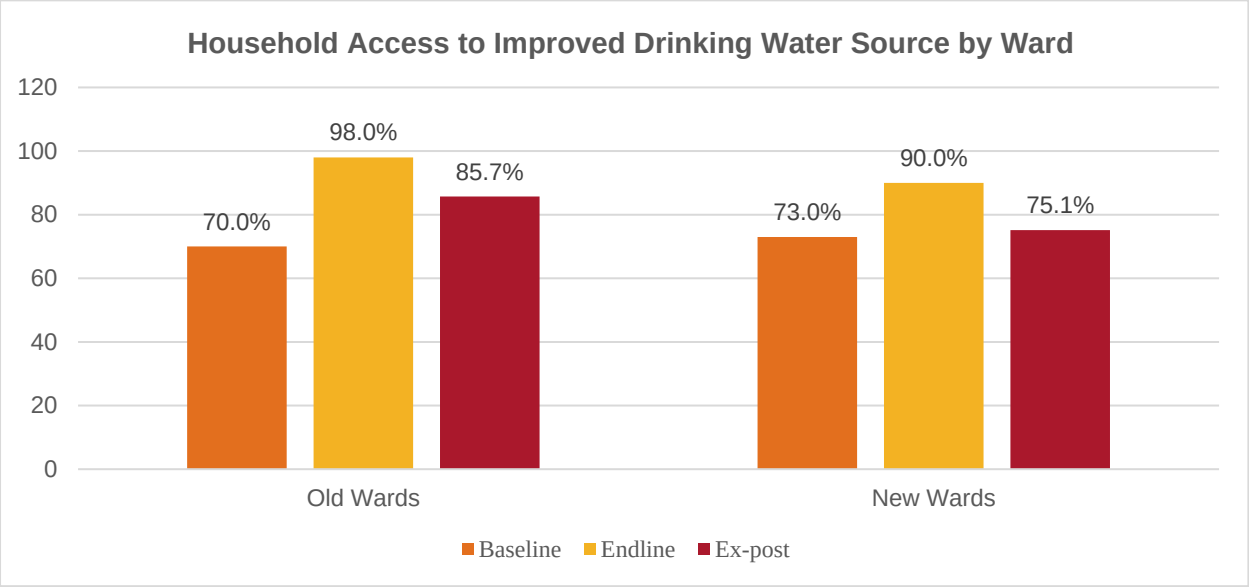

Figure 6. Comparison of ward-level HH access to improved drinking water sources across baseline (2014), endline (2017), and ex-post (2021).

Use of improved water sources was highest in wards 2, 3, 5, and 15 (between 83.3% - 100%) and lowest in wards 1, 4, 7, 8, and 10 (between 64.3% - 75.9%). Primary HH income source was also significantly associated with water source (FET p=0.025). For example, HHs with a primary income source of "buying and selling" and farming reported higher proportions of unimproved water source use compared to the other income sources, 36.4% and 22.3%, respectively.

Table 9. Household use of an improved drinking water source disaggregated by ward, Chivi district, Zimbabwe, March 2021.

Variable	Ward	Unimproved	Improved	Total
		n (%)		
HH use of improved drinking water source by ward*	1	16 (33.3)	32 (66.7)	48
	2	2 (4.2)	46 (95.8)	48
	3	0 (0.0)	24 (100)	24
	4	8 (33.3)	16 (66.7)	24
	5	1 (4.0)	24 (96.0)	25
	7	7 (24.1)	22 (75.9)	29
	8	10 (25.6)	29 (74.4)	39
	10	15 (35.7)	27 (64.3)	42
	15	6 (16.7)	30 (83.3)	36
		65 (20.1)	250 (79.4)	315

* χ^2 p-value <0.001

Fifty-eight percent (58.7%) of respondents reported their main HH water source is always working, while 41.3% reported some levels of disfunction (Table 10). No statistically significant association between HH water source always working and ward (χ^2 p=0.070), age of HH head (FET p=0.066), or educational attainment of HH head (FET p=0.398) was found, however there was an association with gender of HH head (χ^2 p=.021). A greater proportion of female headed HHs reported their main

HH water source is always working, 66.4% compared to 53.3% of male headed HHs.

At the same time, 85.1% of respondents reported having sufficient quantities of drinking water when needed over the last 30 days (Table 10). There was a statistically significant association between HHs having sufficient quantities of drinking water and ward (FET p=0.004); Wards 1, 2, and 8 had disproportionately more HHs reporting not having sufficient quantities of drinking water over the last 30 days. These three wards accounted for nearly three-quarters (72.3%) of all "no" responses. A significant association was also found with educational attainment of HH head (FET p=0.037). Higher proportions of access to sufficient quantities of drinking water were reported in HHs headed by individuals with primary (81.8%) or secondary education (90.2%), compared to HHs headed by individuals with no formal education (74.5%) or vocational/trade school training (66.7%). There were no significant associations found with gender of HH head (χ^2 p=0.080) or age of HH head (FET p=0.693).

While 45.1% of respondents reported water points never breaking down or having no water point, in cases where water points have broken, HHs reported variable times for repair: 22.2% of HHs reported 3 days or less, 11.7% reported 4 to 7 days, 8.9% reported 8 to 29 days, and 12.1% reported a month or more. Overall, one in five HHs (21.0%) reported water point repairs requiring longer than one week, while 33.9% of HHs reported repairs of one week or less (Table 10). There was a statistically significant association between time for repair and ward (FET p<0.001). HHs in wards 1, 3, 5, and 8 reported the highest proportions of water point repairs requiring one or more months. For instance, 40.0% of HHs in ward 5 reported repairs requiring a month or more, compared to 0.0% across ward 10, 3.0% across ward 15, and 4.0% across ward 4. Wards 10 and 15 are closest to the district center. Similarly, HHs in wards 3, 5, 7, and 8 reported the highest levels of repairs requiring 8 days or longer, 33.3%, 44.0%, 27.6%, and 25.6%, respectively.

Regarding perceived water quality, seventy-two percent (72.7%) of HHs reported water having an "acceptable" taste, and 94.6% reported water having no odor when bringing it from the water point (Table 10). Statistical tests revealed no significant associations between water taste (χ^2 p=0.701) or odor (FET p=0.061) with ward.

Table 10. Household drinking water source and quality, Chivi district, Zimbabwe, March 2021.

Variable		n	%	Std. Error	95% CI	
		N=315			Lower	Upper
Main source of drinking water for members of HH	Unprotected surface water (i.e., river, lake, stream, pond, canal, irrigation channels)	49	15.6	2.0	11.8	20.0
	Community protected shallow/deep well	11	3.5	1.1	1.6	5.7
	HH protected borehole/well	25	7.9	1.5	5.1	11.1
	HH unprotected family or deep well	16	5.1	1.3	2.9	7.9
	Communal borehole/public tap	213	67.6	2.7	62.2	72.7
	Piped water into dwelling	1	0.3	0.3	0.0	1.3
Is your HH main water source always working?	Yes	185	58.7	2.8	53.0	64.1
	No	130	41.3	2.8	35.9	47.0
In the last 30 days, has there been any time when your HH did not have sufficient quantities of drinking water?	Yes	47	14.9	2.0	11.1	19.4
	No	268	85.1	2.0	80.6	88.9

When your HH main water point breaks, how long does it normally take to get fixed?	3 days or less	70	22.2	2.3	18.1	27.0
	4 to 7 days	37	11.7	1.7	8.6	15.2
	8 to 29 days	28	8.9	1.6	5.7	12.1
	A month or more	38	12.1	1.9	8.6	15.9
	It has never broken down/does not have a water point	142	45.1	2.8	39.4	50.5
Does your drinking water have an “acceptable” taste?	Yes	229	72.7	2.5	67.9	77.5
	No	86	27.3	2.5	22.5	32.1
Does your water have any odor when you bring it from the water point?	Yes	17	5.4	1.3	2.9	8.3
	No	298	94.6	1.3	91.7	97.1

Water Collection

HHs reported a mean of 115.3 liters of water collected by each day, an average of 25.5 liters/capita/day (CI 21.5 – 29.5) (Table 11). When HHs were asked “who usually goes to the source to fetch water for the HH?”, 77.1% responded that females 15 years and above usually fetch water. One percent (1.0%) responded females under 15 years, 0.3% responded males under 15 years, and 20.0% responded males 15 years and older (Table 12). Regarding the time burden of water fetching, 54.0% of HHs cited length of water fetching (going, collecting, returning) requiring 30 minutes or less. More than a quarter of respondents (27.3%) reported that the water point is very close or within their homestead (Table 12). The remaining respondents (18.7%) cited water fetching requiring more than 30 minutes.

Table 11. Summary statistics of household water collection quantity (liters), Chivi district, Zimbabwe, March 2021.

Variable	Summary Statistics	
How many liters of water does your HH collect each day?	Mean	115.3
	95% Confidence Interval	103.9 – 126.8
	Std. Error of Mean	5.81
	Std. Deviation	103.1

Of those sampled, 67.9% reported always being able to collect all water needed each day, while 31.7% reported sometimes being able to collect all their daily water needs and 0.3% never being able to collect all their daily water needs (Table 12). No statistically significant association was found with gender of HH head (FET p=0.216) or education attainment of HH head (FET p=0.861). However, there was an association revealed between HHs always being able to collect all water needed each day and ward (FET p=0.021) as well as age of HH head (FET p=0.048). For instance, greater proportions of HHs in wards 4 (79.2%), 8 (76.9%) and 15 (83.3%) reported always being able to collect their daily water needs, compared to the other wards. HHs headed by more elderly individuals, specifically those 60 years and older, had lower proportions of respondents reporting always being able to collect daily water, compared to HHs headed by younger individuals.

Sixty-two percent (62.9%) of HHs reported always getting water from the same water source (Table 12). No statistically significant association was found with ward (χ^2 p=0.245), educational attainment of HH head (FET p=0.654), or gender of HH head (χ^2 p=0.556). There was an association found with age of HH head (FET p=0.032). HHs headed by individuals under 40 years of age reported being able to always get water from the same source in greater proportions than HHs headed by older individuals, 83.3% compared to 59.7%. Explanations provided for why HHs cannot always get water from the same water source included boreholes drying up during the dry season, long distances to water source, pump and borehole malfunction and breakages.

Table 12. Water collection responsibility, length required for collection, and ability to collect daily water needs, Chivi district, Zimbabwe, March 2021.

Variable		n	%	Std.	95% CI	
		N=315		Error	Lower	Upper
Who usually goes to the source to fetch water for the HH?	Female (under 15yrs)	3	1.0	0.6	0.0	2.2
	Female (15yrs+)	243	77.1	2.4	72.4	81.6
	Male (under 15yrs)	1	0.3	0.3	0.0	1.0
	Male (15yrs+)	63	20.0	2.3	15.6	24.8
	N/A: water point in house or homestead	5	1.6	0.7	0.3	3.2
How long does it take to go to the main water point, get water, and come back?	Within 30 minutes	170	54.0	2.8	48.6	60.0
	More than 30 minutes	59	18.7	2.1	14.3	22.9
	Water point is very close/within homestead	86	27.3	2.5	22.2	32.1
Is your HH able to collect all the water you need each day?	Always	214	67.9	2.5	63.2	73.0
	Sometimes	100	31.7	2.5	26.7	36.5
	Never	1	0.3	0.3	0.0	1.0
Do you always get water from the same water source?	Yes	198	62.9	2.8	57.1	68.3
	No	117	37.1	2.8	31.7	42.9

Water Treatment & Storage

When HHs were asked what they "usually do to the water to make it safer to drink," 7.6% of all respondents reported treating drinking water, with the most common forms of treatment among those respondents including: 1) Aquatabs or Waterguard (66.7%), 2) boiling (29.2%), and let stand and settle (4.2%). In this ex-poste evaluation, as well as the CWP baseline and endline evaluations, safe water storage was defined as a having a container with a lid. At baseline, only 7.0% of CWP HHs stored their drinking water using a safe method and by endline this figure rose to between 90-93% (CARE, 2017). Since endline, there has been a 31.2-34.2% decrease in HHs using safe water storage methods, with 58.8% reporting the practice ex-post (Figure 7).

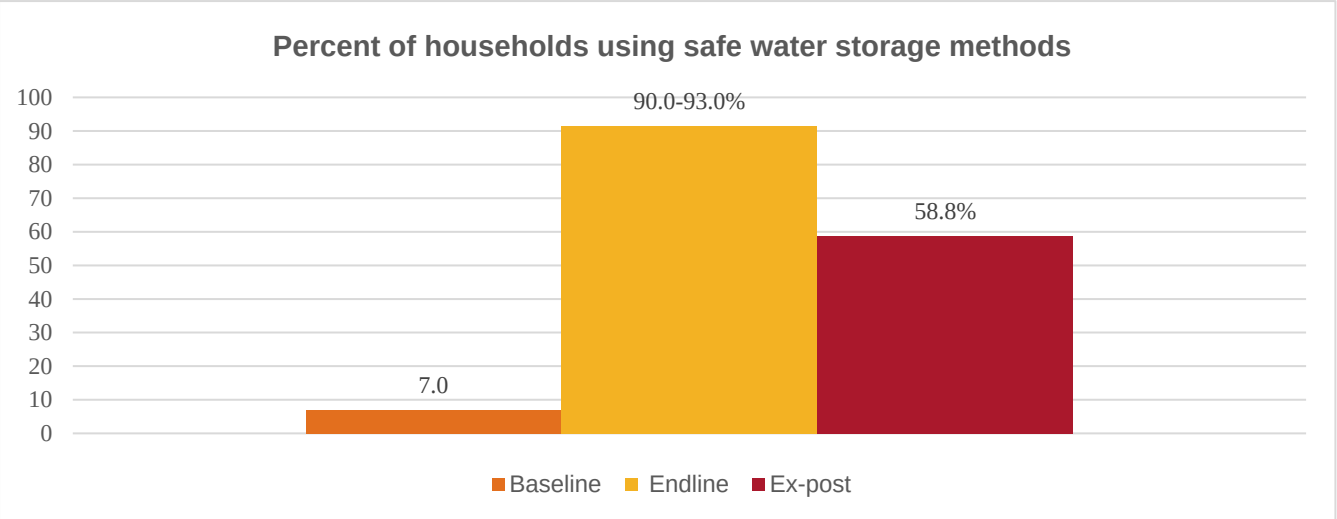

Figure 7. Reported household safe water storage practices across baseline (2014), endline (2017), and ex-post (2021), Chivi district, Zimbabwe.

When asked how HHs mainly store drinking water, 24.1% reported using a wide mouthed container without a lid, 17.1% using a narrow-mouthed container without a lid, 57.8% using a wide mouthed container with a lid, and 1% using a narrow mouthed contained with a lid (Table 13). No statistically

significant association was found with ward (FET p=0.597); however, there were statistically significant associations with gender of HH head (FET p=0.008), educational attainment of HH head (FET p=0.003), and age of HH head (FET p=0.008). For instance, a greater proportion (66.4%) of women-headed HHs reported using safe water storage practices, compared to male-headed HHs (53.3%). Similarly, HHs headed by individuals under 40 years of age reported higher proportions of safe water storage than HHs headed by older individuals, 71.4% compared to 56.8%. Safe water storage varied by educational attainment of HH head, between 55.6% (college or university) and 100% (vocational/trade school and other).

Table 13. Frequency distribution of household storage practices, Chivi district, Zimbabwe, March 2021.

Variable		n	%	Std.	95% CI	
		N=315		Error	Lower	Upper
How is your HH drinking water mainly stored?	Wide mouthed container with a lid	182	57.8	2.8	52.4	63.2
	Wide mouthed container without a lid	76	24.1	2.4	19.4	29.2
	Narrow-mouthed container: without lid	54	17.1	2.1	13.0	21.3
	Narrow-mouthed container: with a lid	3	1.0	0.5	0.0	2.2

Water Point Management

The systems-based water point management model promoted by CARE included the establishment of WPCs that manage the financing, maintenance, and minor repairs of water points in coordination with VPMs and DDF, the local authority facilitating major repairs and other needs outside of the scope of VPMs and WPCs. The WPC is thus a structured and supported water point management model.

Most HHs reported having a WPC (81.9%), while 1.3% reported having a private operator and 1.0% reported school management of water points. This is higher than at CWP endline, where 73.0% of respondents reported a WPC managing their water service. However, during endline 8.0% reported not knowing who manages their water point, while this ex-post showed 3.2% of respondents not knowing (Table 15). Seventy-four percent (74.6%) of respondents reported always being satisfied with their water point management, while 15.2% and 10.2% reported never or sometimes being satisfied respectively (Table 15). The association between water point management satisfaction and ward was statistically significant (FET p<0.001), with the greatest level of dissatisfaction reported in wards 4, 8 and 10; these three wards accounted for about 62.5% of all “never satisfied” responses (Table 15).

Across respondents, 62.5% reported having to pay a water point maintenance fee; however, fees are only paid when the borehole breaks down. Of those paying water point maintenance fees, 86.3% reported fees being affordable. The mean water fee (in USD) reported was $1.19 (Table 14). There were no significant associations between water point fee affordability and ward (FET p=0.068), educational attainment of HH head (FET p=0.592), gender of HH head (χ^2 p=0.292), or age of HH head (FET p=0.607).

Table 14. Summary statistics of water point maintenance fees, Chivi district, Zimbabwe, March 2021.

Variable	Summary Statistics	
Amount paid for water point maintenance fees (USD)	Mean	1.19
	95% Confidence Interval	1.04 – 1.33
	Std. Error of Mean	0.073
	Std. Deviation	1.025

Respondents shared insight into WPC communication, planning, and siting of community water points. Among survey respondents, 70.8% reported WPCs communicate with the community on income, repairs, and expenses, with 8.3% citing no communication, 14.3% reporting having no WPC, and 6.7% did not know (Table 15). There was a statistically association with project ward, with wards 7,10 and 15 reporting the highest proportions of WPC communication, 24.1%, 23.8%, and 41.7%, respectively (FET p<0.001). In comparison, wards 1 and 2 reported the lowest proportions of WPC communication at 2.1% and 4.2% respectively. Regarding community engagement, 57.1% of HHs reported communities being consulted on the original siting of the water point, 21% reported not being consulted and 21.9% did not know. Furthermore, 63.2% of HH respondents reported the community being involved in planning on how to manage the water point, while 19.4% reported not being involved and 17.5% did not know (Table 15).

Table 15. Water point management, satisfaction, fees, and community engagement, Chivi district, Zimbabwe, March 2021.

Variable		n	% N=315	Std. Error	95% CI Lower	95% CI Upper
Who manages the improved water source(s) in the community?	WPC	258	81.9	2.2	77.5	86.0
	Private Operator	4	1.3	0.6	0.3	2.5
	School	3	1.0	0.5	0.0	1.9
	Do not know	10	3.2	1.0	1.3	5.4
	Other	36	11.4	1.8	7.9	15.2
	Private operator and WPC	2	0.6	0.4	0.0	1.6
	WPC and other	2	0.6	0.5	0.0	1.6
Satisfied with the water point management	Always	235	74.6	2.4	69.8	79.4
	Never	48	15.2	2.1	11.4	19.7
	Sometimes	32	10.2	1.7	7.0	13.7
Do you pay any water point maintenance fee?	Yes	197	62.5	2.8	56.8	67.6
	No	118	37.5	2.8	32.4	43.2
Is the amount paid for water affordable?	Yes	170	86.3	2.4	81.2	91.4
	No	27	13.7	2.4	8.6	18.8
Does the Water Point Committee communicate with the community on income/repairs/expenses?	Yes	223	70.8	2.6	65.7	75.6
	No	26	8.3	1.5	5.4	11.4
	N/A: no water committee	45	14.3	2.1	10.5	18.4
	Do not know	21	6.7	1.4	4.1	9.8
Was your community consulted on the original siting of the water point?	Yes	180	57.1	2.9	51.7	62.9
	No	66	21.0	2.3	16.5	25.4
	Do not know	69	21.9	2.4	17.1	26.3
Was your community involved in planning on how to manage the water point?	Yes	199	63.2	2.8	57.8	68.6
	No	61	19.4	2.2	14.9	23.8
	Do not know	55	17.5	2.2	13.0	21.6

The study found a significant association between level of water point management's consultation of communities during water point siting, involvement of communities in planning on water point management, and ward. For instance, a higher proportion of HHs in wards 4, 8 and 10 indicated communities neither being engaged on original water point siting (χ^2 p=0.001) nor involved in planning on how to manage water points (FET p=0.002).

COVID-19 Impacts

According to the survey, the COVID-19 pandemic had variable impacts on HH water access, with 3.8% reporting increased demand for water in the community, 2.5% reporting more water being used due to COVID-19 prevention activities, 1.0% reporting water points needing repair, and 92.4% indicated no change. When asked if COVID-19 impacted communities' ability to access repair parts for water points, 4.8% of HHs reported impacts on repair part access while 69.2% reported no impacts. About 5.1% of HHs mentioned not knowing and 21.0% cited N/A as no breakdowns occurred, and repairs parts were not needed. Similarly, the evaluation assessed COVID-19 impacts on repair parts for HH latrines and found that 1.6% of HHs reported pandemic-related impacts on access to repair parts for latrines, 75.2% reported no impacts, 3.5% did not know, and 19.7% reported not needing parts for repair (Table 16).

Based on survey results, few respondents (1.3%) felt COVID-19 impacted women differently than men. Those who did reported differential gender impacts cited women's gatherings being banned, an increase in HH chores, and no longer going to work due to COVID-19. At the same time, 22.0% of respondents reported COVID-19 impacts on women's ability to participate in community-level activities or committees. Across the sample, 21% reported women not being able to participate in formal gatherings while 62.2% reported COVID-19 having no effect on women's community-level participation (Table 16). When asked how COVID-19 has impacted meetings or communications between communities and WPCs, 56.5% of respondents noted no impacts. Conversely, 41.6% of respondents noted COVID-19 impacts on meetings or communications with WPCs, citing having no WPC or not being able to meet due to gathering restrictions. Other reported COVID-19 impacts on water access and feedback shared by community members include long queues at water source due to social distancing (2.9%) and need for more water to wash hands (0.3%), additional boreholes (0.3%), closer water sources (1.0%), and water treatment (0.3%) (Table 16).

Table 16. COVID-19 impacts on water access, women, water point and latrine repairs, Chivi district, Zimbabwe, March 2021.

Variable		n N=315	%	Std. Error	95% CI Lower	95% CI Upper
Has COVID-19 impacted your HHs access to water?	Increased demand for water in the community	12	3.8	1.1	1.6	6.0
	More water being used due to COVID prevention	8	2.5	0.9	1	4.4
	Water point needs repair	3	1.0	0.5	0.0	1.9
	Other	1	0.3	0.3	0.0	1.0
	No change	291	92.4	1.5	89.2	95.2
Has COVID-19 impacted your community's ability to access repair parts for your water point?	Yes	15	4.8	1.2	2.5	7.3
	No	218	69.2	2.7	63.8	74.6
	NA: no breakdowns	66	21.0	2.4	16.5	26.0
	Do not know	16	5.1	1.3	2.5	7.6
Has COVID-19 impacted your community's ability to access repair parts for your HH toilet?	Yes	5	1.6	0.7	0.3	3.2
	No	237	75.2	2.5	70.2	80.0
	NA: no toilet/no need for repairs	62	19.7	2.3	15.6	24.4
	Do not know	11	3.5	1.0	1.6	5.4
Has COVID-19 impacted women differently than men?	Yes	4	1.3	0.6	0.3	2.5
	No	311	98.7	0.6	97.5	99.7
How has COVID-19 impacted women's ability to participate in community-level activities /	No formal gatherings	66	21.0	2.3	16.5	25.7
	Other impacts	3	1.0	0.5	0.0	2.2
	No impact	196	62.2	2.7	56.8	67.6

committees?	No comment	2	0.6	0.4	0.0	1.6
	N/A	47	14.9	2.0	11.4	19.0
	Do not know	1	0.3	0.3	0.0	1
Anything else you want to share about the impact of COVID-19 on water access or water services in your community?	Long queue at water source due to social distancing	9	2.9	0.9	1.3	5.1
	More water needed to wash hands	1	0.3	0.3	0.0	1.0
	Need for additional boreholes	1	0.3	0.3	0.0	1.0
	Need for closer/nearby water source	3	1.0	0.5	0.0	2.2
	Water has to be treated	1	0.3	0.3	0.0	1.0
	We had enough water	1	0.3	0.3	0.0	1.0
	No comment	218	69.2	2.6	64.1	74.3
	N/A	80	25.4	2.5	20.3	30.5
	COVID did not change anything	1	0.3	0.3	0.0	1.0
Has COVID-19 impacted communications between your community and the Water Point Committee?	Yes	131	41.6	2.8	36.2	47.3
	No	178	56.5	2.8	51.1	62.2
	Do not know	6	1.9	0.8	0.6	3.5

Perceptions of Gender Roles

As part of the quantitative survey, the evaluation assessed HH respondents' perceptions on the role of women and girls within the community, rights to education, and decision-making power. Regarding HH perceptions around girls' rights to education, the evaluation found that while most respondents (96.5%) strongly agree or agree that "girls should be given equal opportunity to education," nearly one of five respondents strongly agreed or agreed that girls should not attend school when they are menstruating (19.4%). With respect to women's leadership, 96.2% of those sampled strongly agreed or agreed that women should be allowed to play leading roles in community WASH projects. Similarly, 89.5% strongly agreed or agreed that women should be leaders in the community. Assessing women's autonomy and mobility, 69.2% strongly agree or agreed that women should obtain permission from her spouse before she goes out in public. Half (50.2%) of respondents strongly agreed or agreed that husbands should be the decision-maker when purchasing major HH items (Table 17).

Table 17. Household roles and gender perceptions, Chivi district, Zimbabwe, March 2021.

Variable	Girls should be given equal opportunity to education					Girls should not attend school when they are menstruating				
	n	%	S.E.	95% CI		n	%	S.E.	95% CI	
				Lower	Upper				Lower	Upper
Strongly agree	302	95.9	1.1	93.7	97.8	52	16.5	2.1	12.7	20.6
Agree	2	0.6	0.4	0.0	1.6	9	2.9	0.9	1.3	4.8
Neutral	4	1.3	0.6	0.3	2.5	9	2.9	0.9	1.3	4.4
Disagree	0	0.0	0.0	0.0	0.0	94	29.8	2.6	24.8	34.9
Strongly Disagree	7	2.2	0.8	0.6	3.8	151	47.9	2.8	42.2	53.6
	Women should be allowed to play leading roles in community WASH projects					If my daughter wants, I think it's fine for her to work outside the home				
	n	%	S.E.	95% CI		n	%	S.E.	95% CI	
				Lower	Upper				Lower	Upper
Strongly agree	270	85.7	2.0	81.6	89.5	263	83.5	2.1	79.4	87.6
Agree	33	10.5	1.7	7.3	14.0	32	10.2	1.7	7.0	13.7
Neutral	11	3.5	1.1	1.6	5.7	13	4.1	1.1	2.2	6.3
Disagree	0	0.0	0.0	0.0	0.0	6	1.9	0.8	0.6	3.5
Strongly Disagree	1	0.3	0.3	0.0	1.0	1	0.3	0.3	0.0	1.0
	A woman should obtain permission from her spouse before she goes to public places					Women should be leaders in the community just like men				
	n	%	S.E.	95% CI		n	%	S.E.	95% CI	
				Lower	Upper				Lower	Upper
Strongly agree	187	59.4	2.8	54.0	64.8	243	77.1	2.4	72.4	81.6
Agree	31	9.8	1.6	6.7	12.7	39	12.4	1.8	8.9	15.9
Neutral	51	16.2	2.1	12.4	20.6	11	3.5	1.1	1.6	5.7
Disagree	20	6.3	1.4	3.5	9.2	4	1.3	0.6	0.0	2.9
Strongly Disagree	26	8.3	1.6	5.4	11.4	18	5.7	1.3	3.2	8.3

	The husband should be the decision-maker when buying major household items				
	#	%	S.E.	95% CI	
				Lower	Upper
Strongly agree	109	34.6	2.7	29.5	40.3
Agree	49	15.6	2.1	11.4	19.7
Neutral	56	17.8	2.2	13.7	21.9
Disagree	34	10.8	1.8	7.3	14.6
Strongly Disagree	67	21.3	2.3	16.8	25.7

Qualitative Results

Sanitation Action Groups (SAGs)

To assess the extent community-based structures like SAGs contribute to sustained sanitation outcomes, semi-structured interviews were held with six (6) SAG members (all women), in wards 2, 4, 5,7,10, and 15. In these interviews, members provided further insight on OD, access to and use of latrines among village HHs. Two SAG members mentioned their communities still being ODF, while the others described OD recidivism in their communities due to toilets being "destroyed" or "collapsed by heavy rainfall." One member from ward 15 said, "most toilets were destroyed by 2020 December rain, so communities are alternatively using the bush." None of the members mentioned COVID-19 impacts on OD practices.

SAG members also mentioned varying levels of access to and use of latrines. Five members described inequitable latrine access in their community. Only one member from ward 5 reported all HHs having access to a latrine. She went further to say, "We even have a toilet at the borehole." Some reasons for community members not using latrines include members not having "resources to build toilets" and "latrines were destroyed by last year's heavy rains." When asked what is needed to ensure everyone uses the toilet when they defecate, SAG members said, "every household must have a toilet," "regular training should be conducted," "maintaining toilets," and community members should be provided with resources, supplies, and support to build or rebuild toilets including cement, bricks, and funding. Some members mentioned collective action and community mobilization to support HHs without sufficient resources to build or rebuild toilets. One member from ward 15 described the community coming together to "mold 4,000 bricks so far to support the households who lack resources to build/rebuild toilets," while another from ward 2 shared that some in the community let resource-limited HHs use their toilets "until theirs are rebuilt." Another member from ward 4 mentioned that the community is "helping them with bricks and money so they can build their toilets."

Most members (four) described no follow-up or monitoring within the communities post-triggering. One member from ward 15 said CARE followed up monthly with the community after the triggering process, "to inspect all households if they have managed to build toilets [and to] conduct training on the effects of OD." This continued monitoring and support ended in 2019 per the SAG member interview. Similarly, one member from ward 1 described post-triggering follow-up in the community. However, this was led by the SAG members twice a month, "encouraging on the construction of latrines." The one SAG that performed follow-up visits post-triggering also reported maintaining ODF status.

The SAG members shared various views on how their actions and activities have created change in their respective communities. Positive changes mentioned impacts on OD and the construction of toilets. Specific responses included "all households are ODF," "reduces the rate of OD," "many people built toilets," increased awareness of "the importance of toilets," and "community achieved ODF." The members were asked what the role of government in reducing OD should be. The responses shared a common theme: providing support for rebuilding, including materials like bricks and cement. There were also calls to action around government support for building and reconstructing toilets across resource-limited HHs. One member from ward 10 advocated for OD penalties and assistance for individuals living with disabilities. Across the interviews, SAG members also shared insights on actions needed for further change regarding sanitation and sustaining gains made to date. Some mentioned that all HHs should have a toilet, and "those without toilets should be helped." Others indicated the need for continued education, training, and awareness campaigns regarding "the importance of sanitation." It was also noted that SAG members should continue monitoring activities across the community.

Village Pump Mechanics (VPMs)

All six interviewees were VPMs representing wards 2, 3, 4, and 10 (three women, three men). Each mentioned being trained either by the District Development Fund (DDF), CARE, and/or Red Cross and shared the trainings were beneficial in improving knowledge and skills of borehole repair. At the same time, a VPM from ward 4 (woman) said, “we are now knowledgeable about boreholes and [can] determine [the] cause of the problem when it breaks down; though I do not have tools to repair boreholes.” Others also mentioned the challenge of not having tools.[8] Similarly, the VPMs shared some missing aspects of training that they wish were included, like “new technologies” and “cylinders.” Others mentioned needing a refresher course and the previous training not being “deep” enough.

During the semi-structured interviews, VPMs described their experiences providing services to the community. Five of the six interviewed remain in business, however the income they receive for borehole repair is quite limited. VPMs shared additional challenges in their roles, including not having enough tools or “money to buy tools,” “not being paid,” and “leadership hiring pump mechanics from other villages whilst we are available.”

Regarding income generation, while VPMs from ward 2 (Woman), ward 3 (Man), and ward 10 (Woman) noted receiving payment for their repair services, the earnings varied. One VPM mentioned not earning enough money, citing “I don’t get any enough money [and] can be paid only $3.00. It’s not adequate at all.”

Responses around income satisfaction from repairs varied across VPMs. The VPM reporting the highest satisfaction with earned income from repair services (ward 10, Woman) noted 50% of her income generated from pump and borehole repairs. Some said they are not satisfied because they “do not get any income,” and customers are taking “pump mechanics from other villages.” Two VPMs from ward 10 (woman) and ward 3 (man) mentioned being satisfied with their earnings. However, one noted that boreholes do not “require repairs every time.” In general, most VPMs either earn supplemental income or no income within their VPM roles.

When asked about the changes observed due to their support as VPMs, some said there is “clean water for the whole community,” and they “help my community with repairing boreholes.” All but one VPM mentioned requiring an adequate supply of tools and repair parts for boreholes to ensure continued services in the community. When asked whether women face different challenges than men in VPM roles, half said no. Conversely, one VPM from ward 10 (man) said, “women are not being considered,” while a woman VPM from ward 4 said, “women are not respected, we are seen as weak who are not strong to handle the job.”

The VPMs shared recommendations for ensuring the sustainability of WASH services in communities. For individuals, recommendations included maintaining “self-cleanliness,” “building toilets so that we are a free disease community,” and ensuring “boreholes are clean.” At the community level, VPMs mentioned the need for “participation in repairs and upgrades” and “using the borehole with extra care.” All VPMs mentioned the need for additional resources from the government as being necessary for sustaining WASH services. VPMs described needing “more resources,” “help with boreholes and toilets,” “increased water points and boreholes,” “equipment/tool kits for repairs,” and “more handsome payment after repairs.”

District Government Stakeholders

Semi-structured interviews with three district government stakeholders (all men) provided additional insight into OD recidivism. A common theme cited was heavy rains, floods, and natural disasters

[8] Toolboxes are expensive and in 2017 the CWP donated toolboxes to schools or clinics where VPMs could “borrow” them. It appears that the toolboxes are no longer available nor accessible in some localities.

resulting in destroyed or collapsed toilets. One district stakeholder said, “the challenge with communities has always been on sustainability. Some toilets were pulled down by the floods recently experienced in the district.” Also cited as challenges to sustaining ODF are lack of ownership, “no appreciation of good benefits of toilets,” and lack of continuous monitoring and support to communities.

When asked what the most challenging aspect of increasing the use of toilets for communities is, some reported “donor syndrome” or “dependency syndrome” as key challenges affecting the use and ownership of toilets and achieving ODF. One stakeholder from the Ministry of Youth said, “people need information about health and hygiene and dangers of open defecation,” emphasizing the continued need for WASH education and its importance in disease prevention. District stakeholders also citing existing disparities in access to toilets within communities, particularly among individuals with special needs. They reported that individuals using wheelchairs and those with other physical challenges require specific toilets that are often not accessible financially. One district stakeholder also shared disproportion use of toilets among non-permanent residents of wards. Several recommendations were shared regarding ways to address these challenges, including:

1. Triggering all wards as well as “cascading correct information on dangers of OD” and

2. “Holding meetings with community leaders.”

Other feedback provided surrounded the importance of WASH education and data management. A District Environmental Health Officer reported, “WASH data is not effectively updated; hence the issue of real-time reporting is not working for decision making.” At the same time, a representative of the Ministry of Youth recommended that we “encourage households to construct permanent and lasting infrastructures, especially latrines and handwashing facilities [and] teach communities on sustainability.”

District stakeholders described challenging aspects of increasing safe water services for communities, including dry holes, rocky terrain, lack of understanding, poor siting, and lack of fencing of water points. A District Environmental Health Officer described some communities as being “both dry and rocky with no or very little underground water. Sometimes the water is very hard and not potable”. Another stakeholder from the DWSSC shared a similar perspective, saying “the major challenge is of dry holes in some of the villages hence, no boreholes can be drilled in such villages.” At the same time, a representative from the Ministry of Youth described challenges relating to “water point locations usually not central” and “dry holes leading to people resorting to riverbed water sources.”

Stakeholders also shared their experiences regarding water access inequity in communities. All stakeholders discussed the long distances some community members still have to travel to access water. Two stakeholders described the need for the use of piped water where possible, while another from the DWSCC said, “bush pumps are heavy, and they need more boreholes and solar-powered water-lifting devices.” In contrast, district stakeholders described access to safe water improving over the last three-five years, including through the drilling of new boreholes, installation of solar-powered pumps, “partner corporations,” repair and rehabilitation of water points, “resurrection of some piped water schemes,” and “mandatory pre and post water quality tests.” Across the interviews, stakeholders provided recommendations for addressing these water quality and access challenges, including “piped water schemes,” “water purifying plants,” and “drilling boreholes in other villages”. All stakeholders described the introduction of piped water schemes as a key recommendation.

Across stakeholder interviews, all participants described women being involved in WASH services, especially WPCs. A representative from DWSSC said “most members of WPCs are women,” while a Ministry of Youth official similarly stated, “70% of WPC members are female”. The District Environmental Health Officer provided additional insight, saying that “female latrine builders and women are in decision making positions in water point committees.” When reflecting on whether women are in leadership roles in WASH services, all stated that women are in leadership – specifically as chairpersons for WPCs.

All stakeholder interviews described COVID-19 impacts water services and availability, including the state of water points, WASH program implementation, and water demand. A stakeholder from the DWSSC mentioned that “some water points broke down during the lock down, and they took a long to be repaired.” Another stakeholder from the Ministry of Youth said, “programs were not fully implemented due to COVID-19 and gatherings at water sources were limited due to COVID-19 regulations”. At the same time, the District Environmental Health Officer noted an increase in “the demand for daily use of water at [the] household level.” Similar experiences around COVID-19 impacts on the use of toilets were shared by stakeholders. Most agreed that COVID-19 impacted the use of toilets, with the District Environment Health Officer sharing that “construction increased a bit as people realized the need for more than one toilet for a household.” The Ministry of Youth stakeholder similarly said that among those who had facilities during the pandemic, “we witnessed the increase of latrine use as most shun OD.”

Thoughts regarding the impact of COVID-19 on women and men differed across district stakeholders. Some shared that the effects of COVID-19 were the same for women and men, with impacts reported including “their relatives died” and “regulations.” Others described different impacts between women and men, with the District Environmental Health Officer mentioning that “[because] people were at home because of the lockdown, women had been affected most with additional workload.” A Ministry of Youth official described women as being more “exposed” than men across communities. Other observations by district stakeholders regarding COVID-19 challenges included the need to “encourage ODF villages to sustain,” “keep WASH infrastructure in place,” “improving routing water quality monitoring,” and “providing title to land.”

Water Point Committees (WPC)

To assess the extent that WPCs have effectively managed water service, 12 WPC members (8 women and 4 men) representing the same number of committees across 8 wards (1, 2, 3, 4, 7, 8, 10, 15) were interviewed to deepen understanding of WPC governance, water point functionality, reliability, financial management, and community and government support for maintaining water points. Nine of the twelve WPC members reported that their committees are still functional, with meeting frequencies including weekly, biweekly, thrice monthly, monthly, and every three months. Others indicated that their WPCs are not functioning and/or not meeting regularly. One member said the WPC is functioning but has never met since COVID, and similarly, another said, “the WPC is not functioning. WPC last met in 2019.”

Eleven of twelve WPC members reported the proportion of women in leadership positions at 50% or higher, with eight WPC members indicating levels of 67% and above. Seven WPCs shared that their committees are led by women, serving as president, across each group. Eight members indicated that their WPCs have written bylaws and/or legal status. When asked if their water points are still functional, ten of the twelve members indicated functionality, while two members said their water points are not functional and/or need major repairs. Both dysfunctional water points were in communities (wards 4 and 10) where WPCs are also not functioning or meeting regularly.

Similarly, these groups do not have adequate finances for repairs, both minor and major. In contrast, half of WPCs members reported water points in poor condition, characterizing their water

points as “too old” and “poor quality.” Some members shared that the pipes have “fallen inside” or “into the borehole.” Others indicated issues with rusty pipes and water, missing or loose bolts, having “no fence,” and the pumps requiring “more than 30 strokes” and being “heavy.” Of the others that reported water points in good condition, one WPC member stated that while the water point was well constructed, “it is only 9 meters deep.”

Most committee members (eight) indicated timely repairs of water points when they breakdown, reporting repair times of one week or less. Responses included “one day, the VPM is always available”, “less than two days,” “a few days,” “2-3 days”, “less than a week,” and “1 week.” However, one respondent noted that repair times depend on the availability of VPMs and the type of repair needed, saying repairs require “less than two days the VPM stays in the village, but if it is a bigger problem, it takes two weeks.” Conversely, two members indicated repair times of more than a year, with one member stating that the water point has not been repaired since 2018 and does not function. Causes of breakdowns shared by members were similar and include “leather cups,” overuse, “too much pressure on the borehole,” issues with cylinders, loose, falling pipes, lost bolts and nuts, loose valves, and “inadequate grease for lubrication.”

Seven WPCs members reported either insufficient water yield, water points drying up, or both, with several indicating impacts on water yield during the dry season. These members also shared HHs in the community resorting to alternative water sources, including unprotected HH wells, boreholes in other villages, unprotected surface water, dams, and shallow wells. One WPC member commented on the implications of insufficient water yield on community members, stating, “in the dry season, they fetch in another village and it takes three hours to get there.” Eight members indicated that technical support is available from local district authorities. However, not all WPCs have received support to date. Those that have received support cited receiving training, pipes, or repair services from DDF.

Regarding financial management and support for water point repairs, most members noted that while they have financial resources for minor maintenance and repairs, there are not sufficient resources for major repairs which require support from local authorities like DDF. Eight members reported committees having water point maintenance funds, however, several indicated that these funds currently have no money and that fund contributions are made when water points breakdown. While none reported HHs paying fees to access water, some indicated that HHs are required to contribute when water points breakdown or require maintenance. For instance, one member described the collection of HH fees, saying, “$2.00 is paid per household only when it breaks down. The caretaker collects the money and hands it over to the treasurer.” Members noted that most minor repairs are led by VPMs, however one member cited “the community itself” manages minor repairs while another cited not having a “VPM or tools in the village.” Most major repairs were reportedly led by DDF, although one commented on fees for DDF services stating, “we pay for fuel and repair parts as a village.”

Village Heads

Twenty-two village heads (1 woman and 21 men) representing the same number of committees across all nine study wards (1, 2, 3, 4, 5, 7, 8, 10, 15) were also interviewed to deepen understanding of the state of WASH in CWP communities. In the interviews, nine village heads reported their community is ODF, while twelve indicated that their villages are not ODF. One village head did not know the current status of his community, stating, “what I know is it was once ODF.” All three village heads indicated some HHs in their communities do not have a latrine. Twenty village heads also mentioned “heavy rains,” “harsh weather conditions,” and “floods,” caused latrine collapse. Some village heads also noted that a few latrines are “cracked.” Proposed reasons beyond collapse by rain and flood included “new families or homestead,” “inadequate materials to

construct toilets," "lack of knowledge on the importance of latrines," "poverty," and "ignorance to change." One village head shared insight on sustained latrine maintenance and use, saying, "most built pit toilets, but most have not maintained them and are no longer using them."

Key themes surrounding the challenges of reaching ODF status emerged from the semi-structured interviews with village heads, including "limited" or "inadequate" resources for constructing latrines, with HHs not able to afford construction costs like cement and other materials. One village head commented on this theme, stating, "many households have dug pits only and cannot afford to construct [latrines]." Another indicated the materials might not be available for construction. Four village heads indicated that "negative attitude by community members" is a challenge in communities reaching ODF status. Other village heads commented on lack of awareness of the value of latrines. For instance, some heads said, "others do not see the importance of latrines" and "others are reluctant to construct latrine." On the other hand, village heads shared challenges pertaining to maintaining ODF status in their respective communities, with common themes including lack of resources and materials, latrines collapsing due to heavy rain, and attitudes and behavior of community members. For instance, one village head indicated a lack of sustained behavior change after the project's exit the community, saying, "people forget about WASH when the project ends."

The semi-structured interviews also sought to understand village head perceptions around needed resources, actions, policies, etc., for creating an enabling environment in which everyone uses the toilet when defecating. Some referred to punitive measures like enacting fines for those engaging in OD, while others pointed to the need for equitable latrine access, ensuring every HH has a facility. Several village heads specifically mentioned the need to support "those without" and "the vulnerable" with latrine construction. Others reflected on the need for continued education, "sensitization," and "awareness programs" on the importance of toilets and an ODF community. A few village heads also indicated the need for building materials, "cash to pay builders," and "empowering the community." One village head suggested new HHs prioritize sanitation infrastructure when building a new home, saying that to ensure everyone uses the toilet when defecating, "new families [need] to build toilets first before building the main house."

When asking the village heads about their roles in ensuring communities have reliable and safe water, common responses included "maintaining the borehole." Others stated their role in advocating for support with local government and engaging in awareness-raising activities within the community. One village head said he "seeks help from the government and ensures that water sources are repaired well and on time to enable the community to have water," while another stated he "approaches council and politicians." One village head mentioned that that he "promotes hygiene at every village meeting and always finds ways to reduce water-borne diseases." Some used the opportunity to share the state of water access in their communities indicating that their boreholes are broken and need repair, while others said they have no borehole at all. One village head elaborated on the level of water access in his community, stating "We don't have a borehole in the village, and people rely on river sources which never dries up. The river is also far away, and villagers do not treat the water." Several mentioned not having Aquatabs to treat water, while others indicated that they must use other water sources like shallow wells, surface water, and other boreholes when water is scarce, particularly during the dry season. Alternatively, one village head said, "we have three boreholes in the village" and another said, "the village uses a borehole which has a good yield and is functioning well."

Results from Dissemination Meetings: November 2021

In November 2021, CARE Zimbabwe held a meeting at Chivi district with fifteen government officials to share the results of this study. For district government it served as a reminder of challenges of water and sanitation in villages, and a call to action. Additionally, CARE facilitated twenty meetings across ten wards in Chivi district, with village heads, Village Health Workers (VHWs), WASH entrepreneurs, and leaders of WPCs or CHCs, as available. With over 800 participants across all meetings, these interactive sessions covered the results of this study, WASH challenges and potential next steps. Below is a summary of the key points discussed by the participants.

Sanitation

Many communities are no longer ODF due to collapse of latrine during recent heavy rains. Families are focused on farming and selling crops so there are no resources for purchasing cement or other latrine construction materials. Many latrines are poorly built and require upgrading, the hiring of skilled laborers (like latrine masons), or the use of improved construction methods like dry bonding.[9] These results corroborate the findings of this study.

One common suggestion across meetings was that village constitutions for “Toilets First” be consistently observed so that all houses require the building of a toilet from the very beginning of construction. Many suggested that those who do not follow this rule should be reported to the village chief to maintain ODF in a community. Government monitoring visits to communities can also help encourage use of sanitation facilities.

Although many SAGs stopped functioning when ODF was reached or the project left the community, many suggested SAGs be revived and undertake village savings and loans (VSL) operations, to encourage sustainability and (SAG-member) motivation, while taking advantage of community gatherings to discuss the importance of hygiene and sanitation. SAGs and VHWs are essential partners to work with Councilors and village heads to ensure latrine construction continues, latrine conditions are maintained or improved, and hygiene is promoted.

Hygiene

Most HHs no longer have tippy taps for handwashing and soap for handwashing is unavailable in most HHs due to competing costs. Many discussed the importance of consistent handwashing and replacement of HH tippy taps or other handwashing facility. Ash was suggested as a good substitute for soap. A number of participants discussed the challenge of menstrual pads limiting girls’ mobility, and suggested trainings on making reusable pads.

Water

Many boreholes are not functioning. The reasons mentioned include: a lack of mobilization of funds by the community to pay for repairs, VPMs do not have training on (this) type of water system, WPCs are non-functional, there are insufficient funds to pay VPMs to perform repairs, and requests for advanced (major) repairs were made to the DDF, but never received. Recommendations from participants included 1) requests for repair should be through formal channels such as the DDF so that follow-ups can be made, 2) having monthly fees for water point maintenance as opposed to only when repairs are needed, 3) ensuring tools to fix boreholes supplied in each village, and 4) WPCs, VPMs, VHWs and village heads should ensure that correct reporting channels are used for major repairs.

[9] Dry bonding is using stones to line pits, but stacking stones “dry,” without mortar to reduce costs and allow water to pass.

Discussion

Sanitation

Regarding sanitation practices, most metrics remained somewhat stable since the project endline, neither improving nor declining substantially over the last four years. For instance, about 9 in 10 adults sampled as part of the HH survey (92.1%) reported using a latrine. This is aligned with the observation that 92.7% of HHs had a latrine, a relatively minor decrease in latrine ownership since 2017. While OD still occurs in a subset of sampled communities, it remains at low levels, with 7.9% of respondents indicating use of a bush/field/no facility. This is also consistent with observational data showing 7.3% of HHs not having a latrine and 1.3% of latrines not being used. The type of latrines used vary, with nearly three-quarters of HHs using an improved sanitation facility promoted as part of CWP and the Zimbabwe-specific SaFPHHE methodology – BVIP and uBVIP latrines (73.0%). This shows relatively high levels of basic sanitation access[10], facilities that safely and effectively separate human excreta from human contact, compared to some other ex-post WASH evaluations which reported access to basic sanitation ranging from 19.0% to 47.0% (USAID 2019, USAID, 2020). It also demonstrates high levels of continued use of project promoted and government endorsed latrines.

Upkeep and enhancement of existing sanitation facilities is reportedly low. Only about 1.0% of the sample cited upgrading or performing maintenance on their latrine despite about a one-quarter of all respondents reported needing to. This may indicate a lack of sustained value of HH sanitation among some latrine owners or a result of "insufficient access to financial and material resources" and that the poorest HHs might "be in a cycle of building poor quality latrines that required frequent repairs or replacement," which affects long term sustainability of sanitation infrastructure and use (USAID, 2019; USAID, 2020). However, how maintenance was defined in the questionnaire may have narrowed HH perceptions of maintenance and thus led to underreporting.

At the same time, nearly half of HHs reported building their own latrines (44.8%), with a majority built during the project (44.8%) or after (12.4%). This may suggest that CWP created strong demand for sanitation and that supply has generally been able to support it. In fact, the motivations reported by respondents regarding latrine construction point to the positive influence of the project and its sanitation awareness efforts.

While over ninety percent of sampled HHs reported using latrines, district-level data suggests that only one-quarter of sampled CWP communities (27.6%, 8/29) are still ODF certified as of February 2021. The district reported ODF certification slippage data is high compared to ex-post evaluations. Most literature shows slippage rates between 9-31.0% in the African context; however, a few cite higher levels of reversion to OD consistent with these results (Abebe & Tucho, 2020; Odagiri et al., 2017). For instance, a study by PLAN international found an overall slippage rate of 92% based on "a range of criteria… used to originally award ODF status for a village" (Tyndale-Biscoe et al., 2013, p.viii). Similarly, a more recent ex-post evaluation in Mozambique found OD occurring in 73.0% of communities four years post program, similar to OD rates reported by Chivi District officials in 2021 (USAID, 2020).

Various definitions and criteria for measuring OD slippage are used globally. One study measured ODF status by calculating the percentage of "HHs [that] claimed to know of people who defecated in the open" while another applied five separate criteria including HH having "1) a functioning latrine

[10] Basic sanitation access cannot be compared between ex-post and endline due to methodological differences. The ex-post reports basic sanitation access as HH access to improved latrines while the endline reported HHs "provided with basic sanitation services through self-built latrines, subsidised latrines or hygiene promotion activities."

with a superstructure, 2) a means of keeping flies from the pit (either water seal or lid), 3) absence of excreta in the vicinity of the house, 4) hand washing facilities with water and soap or soap-substitute such as ash, and 5) evidence that the latrine and hand washing facilities were being used" (Tyndale-Biscoe et al., 2013, p.viii; USAID, 2020). Another study by Stuart et al. (2021) found that ODF certification criteria – particularly latrine coverage thresholds used as a primary criterion for certification – differ by country. For instance, in Ghana and Cambodia, the threshold is 80% and 85%, respectively, while Liberia and Zambia have thresholds of 100% (Stuart et al., 2021).

The same study developed a CLTS performance metric, creating a binary variable for "ODF sustainability" using longitudinal data from Zambia. The researchers defined "a community as sustaining ODF if latrine coverage equaled or exceeded 90% in all follow-up reports posterior to ODF achievement" (Stuart et al., 2021, p. 4066). If this same methodology is applied to this evaluation, the percentage of communities sampled that "sustained ODF" becomes 72.4%, significantly higher than what was reported by district authorities. Since over 90% of CWP HHs are using latrines, it raises the question of whether methods used by the GoZ for measuring ODF in these communities are appropriate, given both user-reported and observational data suggest OD has remained low since the conclusion of CWP. In fact, latrine coverage has remained over 90% in nearly 3 out of 4 sampled communities (21/29) and over 80% in 9 out of 10 sampled communities (26/29) – a significant achievement and demonstration of the long-term impact of CWP in these communities when considering baseline latrine coverage of 48.0-50.0%.

The qualitative data corroborates this finding, pointing to "just a few homes" in each community without latrines – either newly established homes or HHs where the latrine was not rebuilt after being damaged. Since over 90% of homes are using latrines, it brings into question whether "ODF certification" as a binary determination is sufficient or appropriate. For example, OD recidivism and also communities that have not yet achieved ODF do not reflect the significant increases in latrine coverage and use by community members. However, numerous studies have demonstrated that increased sanitation coverage reduces the risk of infection *and* that using a latrine helps reduce the risk of infection for the entire community – not specifically the HH with the latrine (Fuller and Eisenberg, 2016; Harris et al., 2017). Meanwhile ODF certification is provided only to communities in which all individuals do not openly defecate.

Sanitation Sustainability Factors

Behavioral, Social, Cultural

Across the qualitative interviews, some respondents mentioned several behavior-change related barriers to sustaining sanitation outcomes and maintaining a ODF status. While latrine use remained high across the communities, some individual HHs reverted again to OD. A few interview respondents attributed OD to community member's attitudes, ingrained habits, and mentality around OD as well as lack of awareness of the importance and value of latrines. Some community members commented on the challenges related to behavior change, stating "most households are used to OD so it's hard to change their way of thinking." District stakeholders went further to say that a lack of ownership, appreciation of sanitation benefits, and donor dependency across community members may also inhibit sustainability. However, these factors did not emerge as barriers to latrine use in the study's quantitative component. This might suggest a disconnect between user perceptions of recidivism and evidence-based drivers of recidivism.

Demographic

The evaluation found several demographic factors linked to sanitation use, including age and gender. For instance, HHs headed by women reported higher levels of OD compared to that reported by male headed HHs. This finding is consistent with some studies in Africa, which show

disparities in latrine use between HHs headed by men and women in Ethiopia, Mozambique, and Tanzania (Aiemjoy et al., 2017; Carolini, 2012; Kema et al., 2012; Tamene & Afework, 2021). One possible explanation for this could be the disparity in latrine ownership, with higher latrine ownership observed among male-headed HHs in the study (95.7%) compared to female-headed HHs (88.5%). A greater proportion of female headed HHs do not have a latrine and could thus be more likely to engage in OD because of a lack of access to a HH facility.

Though no explicit explanations emerged from the qualitative interviews or HH survey, the gender disparity could be due to "greater barriers to latrine construction [among widows and single women], lacking the manpower to dig latrines," as well as higher levels of poverty among HHs headed by women (USAID, 2020, p. 30; Tamene & Afework, 2021). Female-headed HHs may not be able to afford payment to latrine construction service providers, either due to absence of a male partner's financial contribution or "patriarchal values [that] tend to limit socio-economic opportunities in which women are involved in, including the acquisition of resources necessary to build latrines" (Kema et al., 2012, p. 4). These unique challenges could lead to inadequate self-construction of latrines among female headed HHs, and thus less durable latrines and the inability to pay for reconstruction following collapse or damage (Carolini, 2012; Tamene & Afework, 2021). However, this is speculative and requires further inquiry into wealth disparities between male- and female-headed HHs in Chivi District. Further quantitative analysis suggests that safety issues remain a barrier for women toileting at night. Safety could thus be a motivator for women to practice OD in areas perceived as "safer" at night, closer to the homestead, with better lighting, or with locks to enable privacy and reinforce feelings of safety and security (Caruso et al., 2017; Obeng et al., 2015).

Similarly, HHs headed by younger individuals, those under 40, practiced OD in much higher proportions than HHs headed by older individuals, potentially due to the physical needs of older people to use sanitation facilities (instead of squatting). Additionally, HHs headed by older individuals may play a more significant role in educating others on reducing OD and the importance of using a latrine. Disparities in improved latrine use between groups were significant and require further investigation, especially as it relates to gender norms and behaviors, mobility, and the impact of socioeconomic status on OD and improved sanitation across sub-groups.

Environmental

In some instances, weather and harsh climatic conditions, like heavy rain and floods, combined with poor construction practices eroded sanitation gains after project closure. In qualitative interviews, numerous district government stakeholders, village heads, and SAG members discussed challenges related to collapsed and destroyed latrines due to heavy rains in 2020 and 2021. The lack of access to latrines because of environmental factors was cited across interviews, and is referred to in many other CARE programs, as a barrier to sustained use of latrines and maintaining ODF status. In November 2021, participants in dissemination meetings suggested the use of dry bonding (construction of latrine pits with stones only, no mortar), as latrines constructed like this last through heavy rains and flooding. They also indicated that uBVIP latrines are not being upgraded, and thus more subject to collapse. An ODF study in Zimbabwe by Kugedera and Machikicho (2017) supports this finding, demonstrating a negative relationship between uBVIPs and ODF achievement. The researchers asserted that communities and HHs might "relax" expectations to upgrade uBVIPs after construction, and "if there is no continuous monitoring and support to communities to upgrade their uBVIPs within a reasonable time there will be relapses with communities going back to practicing OD" (Kugedera & Machikicho, 2017, p. 5).

Financial

Qualitative interviews highlighted the relationship between latrine access and poverty, and the

impact of limited financial resources on sanitation sustainability more broadly. SAG members and village heads revealed that poverty and HHs not being able to afford construction or reconstruction costs were key factors related to discontinued use of latrines and OD. Some respondents revealed that inequities in latrine access have led to OD within the communities. Similarly, across the quantitative data, there was a statistically significant association between type of latrine used and income source, with casual labor and remittances showing higher levels of unimproved latrine use compared to the other income sources. This may indicate an association between income generation and access to improved sanitation consistent with the latest publication from ZIMSTAT & UNICEF (2019). However, the inclusion of more accurate data representative of wealth/poverty levels, as opposed to main HH income source as a proxy, would be necessary to determine the extent of this relationship in the Chivi context.

Structural

CWP built the capacities of SAGs to continue WASH promotion to communities after the program's end. Qualitative interviews revealed that most SAGs are no longer playing a significant role in follow-up or monitoring of communities post-triggering. Only one SAG mentioned continued support and current activity, including bimonthly follow-up dedicated to promotion of latrine construction. This was the only community reported to maintain ODF status across those included in the semi-structured interviews with SAGs, a potential indicator of the linkage between continued support of SAGs and sustained sanitation practices. While this evaluation was not able to assess SAG functionality and continued activity as a predictor of latrine use or ODF, Kugedera and Machikicho (2017) found having an active SAG to be a determinant of ODF status. The study posits that "continuous support of SAGs and CHC by government extension workers including EHTs is essential in ensuring that communities attain ODF status" and presumably sustain it (Kugedera & Machikicho, 2017, p. 5).

District officials interviewed highlighted some other factors that may impact sanitation sustainability, including inadequate data collection systems that do not capture real-time, leading to lack of data-informed decision-making by authorities. Two other district officials said more needs to be done to educate communities on sanitation and OD while also promoting the construction of higher quality latrines. Stakeholders in dissemination meeting alluded to challenges with brick molding, dry bonding of pits, and lack of capacity of latrine masons leading to sub-standard quality structures.

Hygiene

Despite nearly a third of HHs from CWP villages reporting always washing their hands with soap, observational data suggest self-reported handwashing may be inflated and actual handwashing is much lower. About two-thirds of HHs did not have a handwashing facility (66.7%), while most present facilities were either without water, soap, or both. Enumerators observed soap next to a functional handwashing facility in just 1.9% of HHs. These observations are a significant decline from the CWP endline, which cited nearly 87.0% of HHs with appropriate handwashing facilities at the end of the project period (CARE, 2017). Results from the dissemination meeting shed light on this otucome, revealing that many HH tippy taps are no longer functional and need to be replaced.

Results from the stakeholder dissemination meeting revealed that many HH tippy taps are no longer functional and need to be replaced, explaining the high levels of HHs without any observed handwashing facility.The lack of access to functional handwashing facilities found across the sample at ex-post appears to be a primary barrier to sustained handwashing practices across CWP villages. While these observations are significantly lower than expected, knowledge of handwashing at critical times has improved since the CWP endline, especially knowledge of handwashing before cooking/prepping food, before feeding a child, and after changing a diaper. This may suggest a small spillover effect of hygiene knowledge and awareness post-project, or the effect of COVID-19 handwashing campaigns. However, given knowledge has remained high, lack of adequate handwashing facilities may be a barrier to applying that knowledge into practice and replacement of tippy taps should be prioritized by HHs.

Hygiene Sustainability Factors

Demographic & Structural

The evaluation found several demographic factors linked to sustained hygiene behavior, including age and gender of HH head. In the quantitative component, the association between handwashing with soap and age of HH head reveals potential behavior differences between younger- and older-headed HHs; HHs headed by individuals 60 and older reported lower levels of handwashing with soap than younger-headed HHs. One explanation could be the presence of children in younger HHs and more frequent handwashing with soap due to diaper changes and child feeding. These individuals may have also been more actively involved in the CWP and other WASH education efforts given due to greater mobility, and thus more knowledgeable of handwashing practices.

Analysis of the quantitative data highlights the relationship between functional handwashing facilities and locality, with significant ward-level differences in access to functional handwashing facilities. HHs in wards 4, 8, and 10 appear to have lower access to handwashing facilities compared to other, with between 71.8% - 91.7% of those HHs having no facility. Similarly, greater proportions of HHs in wards 2, 7, and 15 had facilities without water. This may indicate some structural and financial barriers to sustained handwashing practices

Financial

While not explicitly identified as a barrier to handwashing and soap use by respondents, there may be financial barriers preventing HHs from effective handwashing. Statistical tests across the quantitative data revealed an association between 1) handwashing with soap and income source as well as 2) presence of a functional handwashing facility and income source. As described above, this relationship requires further investigation into the relationship between handwashing and income generation, wealth and asset ownership, and thus the socioeconomic status of HHs. However, there is evidence both in this evaluation and in the literature to suggest that limited finances may impact consistent handwashing, particularly among those living in extreme poverty (USAID, 2020).

Water

Most HHs (79.4%) reported having **access** to an improved water source for drinking, a decrease of 14.6% compared to endline. The most common source was a communal borehole or public tap (67.6%). However, this level of access is on the high end of improved water source access post-project, compared to other ex-post literature which cite access levels ranging between 24.5 – 83.0% (USAID, 2017; USAID, 2020). At the same time, about one in six (15.6%) HHs continued to use unprotected surface water for drinking. Statistically significant associations between unimproved drinking water use, insufficient access to water and income source may reveal an important relationship between water, poverty, and income.

Regarding water **functionality**, over half of HH respondents reported their main water source is always working while most WPC members (10/12) indicated that their water points are still functional. However, while most respondents reported functional water points, about half of WPC members and some HH respondents commented on water point conditions. Several cited aging water points, falling pipes, fencing, and missing or loose bolts as necessary repairs. Furthermore, the dissemination meetings with community members suggest that water point functionality may be worse than expressed in interviews with WPC members or has worsened since data collection[11]. However, unlike this evaluation's HH latrine and handwashing components, there are no observational data to confirm self-reported water access or functionality.

In terms of water **quantity**, 85.1% of HHs reported having sufficient quantities of drinking water. Based on HH surveys, it appears many water points are providing water quantity at a basic service level (≥ 20 liters per person per day), given HHs are collecting an average of 115 liters of water daily. In fact, over two-thirds (67.9%) reported being able to always collect their daily water needs. Similarly, most HHs are able collect their water from the same source (62.9%). However, qualitative interviews suggest that some water points have high stroke rates which require greater time and physical exertion for sufficient water collection. HH perceptions of water quality appear mostly positive, with nearly three-quarters (72.7%) reporting water having an acceptable taste and nearly all (94.6%) reporting water having no odor.

Regarding **accessibility**, more than half of HHs (54.0%) reported roundtrip water collection requiring 30 minutes or less and over a quarter (27.3%) have a water point very close or within their homestead. While the majority reported accessibility, nearly one-fifth of HHs (18.7%) reported water collection requiring more than thirty minutes. At the same time, women bear the brunt of water collection responsibility, with over a three-quarters of HHs (77.1%) reporting watching fetching led by women and girls 15 years and older.

In terms of **reliability** – continuous provision of water – some HH respondents and stakeholders indicated challenges, with several water points not providing year-round access mostly due to seasonal failure. In the HH surveys, some respondents said they cannot always get water from the same water source due to boreholes drying up during the dry season or due to borehole malfunction and breakages. Qualitative data, with specific reference from WPC members and district government stakeholders, supported these findings. All district government stakeholders indicated reliability issues related to dry holes and community members having to use secondary water sources, including unprotected surface water, to meet their needs. Several WPC members further supported this finding, citing water points drying up or providing insufficient water yield, with HHs fetching water at secondary sources, traveling to other villages at times. Compared to CWP 2017 endline, about a third less HHs reported safe storage methods and only a few are treating their water. This is a sizable decrease compared to endline, demonstrating that safe water practices were

[11] Dissemination meetings were held eight months after the study data collection.

not sustained.

Water Point Sustainability Factors

WPCs & Water Point Management

Nearly a third of HHs (33.9%) reported repairs requiring less than a week. However, over one-in-five HHs cited repairs requiring longer than a week, and over one-in-ten requiring more than a month. This shows that while many water points are in good condition and are repaired in a timely manner, some are not receiving the support required for ensuring consistent water access. These data correspond with HH satisfaction, with over three-quarters of HHs always satisfied with their WP management, which likely indicate that timely repairs and maintaining good water point conditions are drivers of HH satisfaction. Similarly, 70.8% of HHs said WPCs communicated with the community on income, repairs, and expenses. Less HHs reported WPCs consulting them on WP siting (57.1%) and involving them in WP management (63.2%), however, this level of consultation and inclusion is still relatively high compared to many WASH programs.

Old wards that received longer program implementation and a more comprehensive delivery model – specifically the drilling of new boreholes that new wards did not receive – showed greater access to water both at endline and ex-post. This finding is expected given the greater emphasis on increasing water service coverage through the construction of new boreholes and rehabilitation of existing boreholes in old wards, compared to focus on the latter activity only in new wards. This led to wider access to water in old wards at endline and has had lasting effects demonstrated ex-post (CARE, 2017). This suggests that program design and delivery were determinants of access to improved water sources ex-post. CWP's emphasis on creating new water infrastructure in old wards led to greater access to water over time than in new wards.

Ward-level differences were found across other water-source variables as well, showing different levels of governance, community inclusion in decision-making processes, and support by WPCs across wards. For instance, wards 1, 4,8 and 10 reported the greatest levels of dissatisfaction in water point management. Of these, wards 4, 8, and 10 also reported, in higher proportions than other wards, neither being engaged on original WP siting nor planning and management. Wards 1 and 8 specifically appear to have disproportionate water access and water point management challenges, reporting among the highest proportions of use of unimproved drinking water and insufficient drinking water. HHs in these two wards also reported some of the highest levels of WP repairs requiring more than a month.

WPC committee members validated these findings, with most citing timely repairs while a few revealed some jarring disparities, with one member stating their water points required more than a year to repair and another revealing the water point has been in disrepair since 2018. Given the commonalities across these wards regarding water outcomes, WPC governance, water point management and lack of community engagement may be creating water service issues within these wards and impacting sustainability more broadly.

Lastly, it's important to note that some HHs reporting having no WPC (14.3%) while almost half of WPC members interviewed revealed that they are either not functional or not meeting regularly due to COVID, the farming and rainy season. At the same time, enumerators cited some sampled villages were without boreholes and thus had no WPCs. This is consistent with program documents which indicate that, at endline, a subset of communities was not reached with water interventions, nor had WPCs established. Regarding women's engagement in these committees, most report 50% or greater representation of women in leadership and half are led by women, a demonstration that the project's gender impacts continued after the project ended.

Financial, Technical & Institutional

In terms of water point financing at the HH level, about two-thirds of HHs reported (62.5%) paying maintenance fees, however, most feel these fees are affordable, with an average fee of $1.19 per month. The proportion of HHs paying water management fees is relatively high compared to other ex-post evaluations which report proportions between 33.0 – 60.0% (USAID, 2019; USAID, 2020). Despite these higher rates of tariff payments, WPC members reported that while they have sufficient funds for minor maintenance and repairs, there are insufficient resources for major repair. Fees and financial systems as insufficient for covering operational and maintenance of water points is a consistent theme across the ex-post literature (USAID, 2019; USAID 2020). This finding was also supported in the dissemination meetings, with community members noting insufficient funds and lack of mobilization of funds by the community to pay for repairs.

At the same time, some respondents shared that VPMs are not always available for repairs. On the other hand, despite the CWP design and goals around VPMs, about half of VPMs interviewed reported not being paid or paid enough for their services. Others indicated a lack of access to repair tools and spare parts for boreholes. Furthermore, many VPMs noted that they are not properly trained to address all repair needs, including repair of cylinders and new technologies. These results were also supported by the dissemination meetings during which community members articulated insufficient VPM training for certain water systems as well as insufficient funds to pay VPMs for their repair services.

Some VPMs also noted that the communities sometimes use VPMs from different villages, despite being available for service. In this sense, project trained VPMs may be undervalued, underpaid, and undertrained, with lack of access to the parts and tools necessary for pump repair. This may be linked to the longer repair times and dissatisfaction in some wards and communities. Lastly, gender perceptions and norms may impact the perceived value and use of women VPMs despite the project focus on women's economic empowerment and entrepreneurship. Some women VPMs are neither considered for pump maintenance work or respected in their roles, an indication that continued gender disparities may exist across the role and the community.

While many WPCs reported receiving support from the DDF for major water point repairs, not all have received support to date. Results from the dissemination meetings suggest the need for more formal repair request channels and informing DDF of boreholes needing repairs. Village heads validated these findings, stating that communities need money to pay VPMs while highlighting their role in engaging local officials for major water point repairs and support.

Conclusions

CWP HHs maintained high levels of sanitation use while only a small proportion of HHs reverted to OD. Recidivism was often discussed in the context of lack of resources and finances for building and rebuilding latrines, particularly among HHs that cannot afford materials or labor for repair and construction. Flooding and heavy rain significantly impacted sanitation infrastructure sustainability, with ultra-poor and vulnerable HHs often unable to rebuild after these environmental shocks. While there was not a resilience building objective embedded within CWP, the recurrence of weather-related shocks and its impact on sanitation infrastructure across vulnerable HHs was evident throughout this evaluation. This finding underlines the importance of incorporating resilience-building strategies into WASH programming, as well as addressing local soil conditions and increasing access to appropriate and affordable construction materials. According to the interviewees, SAGs did not provide expected levels of support to CWP communities post-project which may have impacted sanitation outcomes.

Access to an improved water source remained high despite a moderate decrease from 2017 endline. Many water points remained functional, despite some breakdowns, aging hardware, and some minor repairs needed. However, insufficient funds and formal channels for communication and requesting major repairs with local authorities remain a significant barrier to long-term water point sustainability. While seasonal failures and dry boreholes are a challenge in some areas, most continue to provide an adequate quantity of water for HHs. The burden of water collection on women remains a challenging social norm that requires further consideration in women's empowerment programming.

Although WPCs did not meet regularly due to rainy seasons and COVID-19 pandemic, most HHs appear highly satisfied with their water point management and involvement of community. However, there are some ward-level differences in water access and management that require further investigation. Engagement of ward officials will be critical to enhancing water access outcomes and water point management in these areas.

Regarding WPCs, many continue to support CWP villages in a significant way, often facilitating water point repairs in under one week. Most respondents believe there is good WPC communication with the community. Women have taken on leadership roles and are greatly represented across WPCs, driving continued management and oversight of water points. This level of women's engagement, particularly in leadership, and the demonstrated sustainability of water outcomes underline the importance of women's empowerment as drivers of effective governance and sustainability.

Meanwhile it appears VPMs are often underpaid, or underutilized, especially female VPMs, despite CWP design. VPMs may require additional training, as evidenced by interviewee requests for "deeper" training and refreshers, and tools for repairs. This suggests that this element requires further attention during future design and implementation to ensure continued demand and supply for quality and local water pump mechanic services.

Lastly, HH members in CWP communities continue to exhibit high levels of handwashing knowledge. HHs demonstrated greater knowledge of handwashing during critical times, compared to 2017 endline. This shows the hygiene promotion activities embedded within CWP's SaFPHHE approach effectively led to sustained handwashing knowledge. However, despite high and growing handwashing knowledge, most individuals are not translating that into practice nor have functional handwashing facilities.

Future Considerations & Recommendations

In general, CWP's integrated approach led to sustained understanding of WASH and behavior change across its target population. Its comprehensive design and engagement of district government led to greater access to safe drinking water and improved latrines while also facilitating increased community capacity and community ownership of WASH management after the project. At the same time, some barriers to WASH sustainability have emerged, limiting the impact of certain project components. These barriers necessitate a call to action for NGOs, private sector, government, and service authorities. The recommendations listed below were developed to inform future program design, policy, and advocacy, as well as multi-stakeholder coordination mechanisms in the WASH sector. These recommendations build on the successes demonstrated as part of CWP while also addressing gaps and limitations highlighted in this study. They are not representative of CARE but are potential areas for future focus.

- **Zimbabwe needs a "post-ODF" protocol**. Many villages are able to achieve ODF, but there is not a clear understanding of how to maintain ODF. The roles of SAG members and other community leaders, after ODF is achieved, needs clarification to ensure continued sanitation support post-project. At the same time, local village leadership should also enforce "Toilets First" constitutions to increase ODF compliance.
- **Consider a "step-wise" recognition for reducing OD.** Many villages achieved ODF or made huge increases in latrine coverage but are not ODF certified. Benefits to the health of the community, specifically child growth indicators, can happen with incremental increases in latrine use (Fuller & Eisenberg, 2016).
- **Recognizing the importance of handwashing in disease reduction,** future efforts need to focus on handwashing application and facilitation at the HH, over handwashing knowledge.
- **Sanitation programs need to budget for subsidies for ultra-poor HHs.** One of the findings was that uBVIP latrines are often not being "upgraded" and the super structure is vulnerable to weather. Subsidizing a limited number of ultra-poor HHs with quality latrines is likely needed.
- **Facilitation of bulk purchasing for latrine materials.** Buying materials in bulk for latrine building (cement, pipes, etc.) can reduce prices and increase accessibility for HHs.
- **Stockpiling of spare parts for water points.** Many WPCs and VPMs mentioned difficulty in paying for transport or finding the spare parts needed for repair. Communities should regularly mobilize funds for parts and labor, but the GoZ may need to assist in stockpiling items for purchase. Many participants mentioned the need for tools to make water point repairs.
- **Local leadership and government budgets need to prioritize sustainability of WASH activities – not just new water points.** District Development Coordinators and Rural District Councils should engage local leaders on ways to invest in and prioritize WASH and monitor activities of communities, NGOs, and other implementing partners. This could include strengthening formal channels for communicating water point repair needs, stronger WP tariff mdoels, and improving district-level monitoring and support for maintain the functionality of community boreholes.
- **Further expansion on the role of women in WASH.** The CWP and other programs demonstrate the importance of not only involving women in WASH decision-making and paid labor, but also conducting programs that increase their confidence and increase community members' "acceptance" of the skills and opinions of women.

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Annex A. Qualitative Semi-Structured Interview Guides

WATER POINT COMMITTEE

READ CONSENT FORM AGREE TO PARTCIPATE YES/NO. IF YES CONTINUE WITH INTERVIEW.

Gender of individual: _____

START TIME STAMP: - -: - - AM/PM

DATE: - - / - - / - - MM/DD/YY

	WATER POINT COMMITTEE (WPC) MEMBERS			
1.	Does this Water Point Committee (WPC) still "function"/ meet regularly?			Y/N If yes, how often does the WPC meet?
3.	Can you tell me the leadership positions on the committee, whether they are male or female and their education level? **FILL THE TABLE BELOW**			
	Title	**Gender**	**Education**	**Other**
3a	President			
3b	Vice-President			
3c	Secretary			
3d	Treasurer			
3e	Member			
3f	Other			
4a	When was this water point committee (WPC) formed?			
4b	Has there been any changes in the role of men and women in this WPC over the years? What needs to be improved / or added to WPC training?			Y/N If yes, please explain the changes
6	Does the WPC have written bylaws? Y/N Does the WPC have legal status with local government? (E.g. has been certified by local govt)? Y/N			
7	How many water points (WP) does this WPC manage?			
	FUNCTIONALITY **NOW I AM GOING TO ASK YOU ABOUT WATER POINT FUNCTIONALITY**			
9	What is the type of WP?			
10	How old is the WP / when was it constructed?			
11	Who paid for construction of the WP?			
12	Who constructed the WP?			
13	Describe the overall quality of the WP?			
14	Was the WP constructed from scratch or rehabilitated?			
15	In most cases if the WP breaks down, what is the cause of breakdown?			

16	When the WP breaks down, generally how long is it nonfunctional?	
17	Is the WP currently functional?	Y/N If no, does it require minor or major repairs?
19a	Is technical support from local district authorities available?	Y/N/DK
19c	Has the committee ever received support?	Y/N/DK If yes, please describe the support
	RELIABILITY	
20a	Is the water point protected?	Y/N If yes, please describe
21	How many meters away are the closest sanitation facilities from the WP?	meters
22	Who is responsible for DAILY management of the WPs?	
23	Is there any water allocation (limit of water that can be collected) per HH?	Y/N If yes, how many liters per day? _____liters
25	Who monitors the allocation?	
26a	Who pays the person responsible for water allocation (or for DAILY management)?	
26b	What is the source of funds for paying this person?	
27a	Is the WP open 24/7**?** **If no, when is the WP open?**	Y/N
28	How many households (HH) does this WP serve?	
29	How many HHs regularly pay a fee to access water?	
30	Does the water point provide sufficient water for all families in the community daily?	Y/N
32a	Are there other water source(s) the community uses?	Y/N
32b	If yes, please describe the source(s)	
33a	Does the water point ever dry up?	Y/N; If yes, how many weeks a year is it dry?
33c	If it dries up where do HHs access water?	
	FINANCES	
34b	Does the committee have a water point fund?	Y/N
35a	Did the committee lose any money because of dollarization?	Y/N/NA If yes, lost by how much $ _____ gained by how much $ _____

36a	Does the committee have a bank account?	Y/N
36b	How do you pay for repair expenses? Who collects money and how is that money stored? Are regular financial records kept?	
36c	Is there sufficient money to pay for minor maintenance?	Y/N
36d	Is there sufficient money to pay for major repairs?	Y/N
	WPC REPAIRS	
37a	Who does repairs?	Minor Major
37b	Do they conduct satisfactory work?	Y/N/NA If no, please explain
37d	Did this person / these people receive training?	Y/N Please explain
	GOVERNMENT AND COMMUNITY PARTICIPATION	
38	How many of these skilled community members are present in your community? (approximate) **FILL THE TABLE BELOW**	

	Latrine Builders	**Pump Mechanic**	**Healthcare Workers**	**Extension Workers**	**Other Specify**	**Other Specify**
Female						
Male						
Total						

39a	Does the water point service a school?	Y/N
39b	Does the water point service a heath facility?	Y/N
40a	Are there any WP inspections for water quality and safety?	Y/N If yes, how many times per year? _____ by whom _____
41	What role does the local government play in water services in this community?	
42	What do you want your government to contribute for WASH services in your community?	
44	What role does the community play in water services? AND/OR what do you think the community should do (differently/better)?	

44b	Do you believe there is a good level of trust and communication between people in this community? (e.g. *social cohesion, social capital, people get along well…)*	
	COVID-19 RELATED CHALLENGES	
45	Has there been an impact on your communities' water or water services / water availability due to COVID?	Y/N If yes, please describe the impact
49	Are there any challenges with repairs due to COVID?	Y/N If yes, please explain the impact
51	Are there any challenges with WPC meetings due to COVID?	Y/N If yes, please explain the impact
	Any other comment?	

THANK YOU FOR YOUR PARTICIPATION **END-TIME STAMP: - -: - - AM/PM**

SANITATION ACTION GROUP MEMBERS (SAG)

READ CONSENT FORM. AGREE TO PARTICIPATE? Y/N. IF YES, CONTINUE WITH THE INTERVIEW.

Gender of individual: _____

START TIME STAMP - -: - - AM/PM

DATE - - / - - / - - - - MM/DD/YY

	ROLE AND TRAINING **I AM GOING TO ASK YOU ABOUT YOUR ROLE AND TRAINING AS A SAG MEMBER**	
1	What role do you / did you play in ensuring HHs in this community do not openly defecate?	
2	Did you receive training**?**	Y/N **IF NO SKIP TO NUMBER 7**
3	What skills do you feel were missing from this training?	
4	What was the main benefit to you as part of the CWP?	
	TRIGGERING AND OPEN DEFECATION FREE (ODF)	
7	What is the approximate year of CLTS triggering in this community? (If applicable)	
8	Which agency performed the triggering? (If applicable)	
9	What is the approximate date of ODF certification/completion? (If applicable)	
10	Is your community still ODF?	Y/N **Please explain**
13	Were there any follow-up visits after the triggering?	Y/N **IF NO SKIP TO SANITATION SECTION**
14	If yes, who did the follow up?	
15	What is done during the follow up visits?	
16	How often do they follow up? / When was the last time someone did a follow up visit?	
	SANITATION: NOW WE ARE GOING TO TALK ABOUT SANITATION	
18	Do all HHs in this community have access to a toilet / latrine?	Y/N/DK (estimate a proportion…)
19	Do all community members use toilets/latrines for defecation all the time?	Y/N/DK
20	If no, what do you think is the reason community members are not using toilet/latrine?	
21	What is needed to ensure everyone uses a toilet every time they	

	defecate?	
22	Are there any HHs that do not have sufficient resources to build / re-build a toilet?	Y/N If yes, what can be done?
23	What is being done by the community to support these HHs?	
25	Have there been any change(s) in your community because of your actions / activities as a SAG member?	Y/N Please explain your thoughts on this (why/why not)
28	What do you think should be done for positive change on sanitation? **OR** What do you think should be done to sustain gains made?	
	Do you believe there is a good level of trust and communication between people in this community? (e.g. *social cohesion, social capital, people get along well…)*	
	GOVERNMENT AND COMMUNITY PARTCIPATION	
30	In your opinion, what should be the role of the local government in reducing OD in this community? Any other recommendations to the government for reducing OD in this community?	
31	In your opinion, what should be the role of the community in reducing OD in this community? Any other recommendations to the community for maintaining open defecation free status in this community?	
34	Has COVID had an impact on defecation practices in your community?	Y/N; Please explain

THANK YOU FOR YOUR TIME **END-TIME STAMP - - : - - AM/PM**

WASH ENTREPRENEUR
READ CONSENT FORM. AGREE TO PARTCIPANT? YES/NO. IF YES, CONTINUE WITH THE INTERVIEW

Gender of individual: _____

START TIME - -: - - AM/PM

DATE - - / - - / - - - - MM/DD/YY

	ROLE AND TRAINING **I AM GOING TO ASK YOU ABOUT YOUR ROLE AND TRAINING**	
1	What do you do as a WASH entrepreneur?	
2	Do you earn money in this role? Does this role represent your primary income, or supplementary income? Do you find this a good/satisfactory income? Please explain. What percentage/amount of your annual earnings does this role provide? Has demand for your work been consistent? Are your earnings consistent?	Y/N Please explain
3	Did you receive any training for this role?	Y/N. Please explain
5	If yes (to receiving training): How has your training benefited you? What was good about your training? What are aspects that you think were missing in the training that you wish were included?	
7	What were the changes in your life due to this new role?	
8	What are the changes you have seen in the community because of the work you do?	
9	What further changes would you like to see in your community in terms of water, sanitation or hygiene?	
10	What is needed to ensure that you can continue to offer services to the community?	Does this need prompts for enumerators? E.g. Does the entrepreneur need specific support such as training or materials? Is there a condition in the community that needs to change in order to ensure the entrepreneur can offer

		support?
11	What are the challenge(s) you face in your role?	
	Do women face different challenges than men – when in a role like yours?	If yes, what are examples of the different challenges that women entrepreneurs and men entrepreneurs face?
	COVID-19 RELATED CHALLENGES **FINALYY, I AM GOING TO ASK YOU ABOUT COVID RELATED CHALLENGES**	
13	Did COVID affect your role? Has COVID affected your earnings?	**Y/N** If yes, please describe how you have been affected
15	Is/was the community affected by COVID?	**Y/N** If yes, please describe how the community was affected?
18	Do you have any recommendations for WASH services to be sustainable in communities? Role of individuals Role of community Role of government Role of service providers	

THANK YOU FOR YOUR TIME. **END TIME - -: - - AM/PM**

VILLAGE HEAD

READ CONSENT FORM. DO YOU AGREE TO PARTICIPATE? YES/NO. IF YES, CONTINUE WITH THE INTERVIEW.

Gender of individual: _____

START TIME STAMP - -: - - AM/PM

DATE: - - /- - / - - - - MM/DD/YY

	I AM GOING TO ASK YOU A BIT ABOUT YOUR ROLE WITH SANITATION	
1	Is your community Open defecation free (ODF)?	Y/N/DK
4	If yes, was it verified?	Y/N
5	How many HHs in this community do not have a toilet? Why? What do you think are the reasons?	
6	Are there HHs that *had a toilet* but now do not due to damage/collapse? *Please explain*	
7	Do you have meetings about sanitation with the community members?	Y/N If yes, please explain
9	What role do you play in ensuring HHs in this community do not openly defecate?	
10	What is needed to ensure everyone uses a toilet every time they defecate?	
10a.	Do you have a constitution for toilets construction	
10b.	Do you promote the uBVIP concept	
11	What is the most challenging aspect of **reaching** ODF in your community?	
12	What is the most challenging aspect of **maintaining** ODF in your community?	
13	Within the community are there certain HHs or vulnerable groups who do not consistently have / use toilets?	Y/N If yes, please explain
	Any other recommendations for encouraging or maintaining open defecation (free) status in this community? (Gov't / community / other?)	
	WATER	
	What role do you play in ensuring HHs in this community have a reliable and safe water supply?	
	Did you receive any training on this?	Y/N Who/When/What
15	What is the most challenging aspect of increasing safe water services	

	in your community?	
16	Within the community are there any inequalities of access to water? (certain people/groups, etc.)	
19	Any recommendations to the government for supporting a reliable and safe water supply in this community	
23	Any other recommendations for reducing OD?	
	GENDER EQUALITY NOW WE ARE GOING TO DISCUSS EQUALITY OF WOMEN AND MEN	
25	What role do you play in promoting equality among women and men in your community?	
27	Why is it important for men and women to have equal rights?	
	Do you believe there is a good level of trust and communication between people in this community?	
	COVID-19 RELATED CHALLENGES	
28	Has COVID-19 impacted water services / water availability in this community?	Y/N If yes, please explain the impact
30	Has COVID-19 impacted the use of toilets/latrines?	Y/N If yes, please explain the impact
32	Has COVID-19 impacted women and men the same**?**	Y/N If yes, please explain the impact
35a	Do you have child headed HHs in this community?	Y/N. Has COVID impacted child headed HHs Y/N. If yes, please explain the impact:
36a	Do you have HHs with people with disabilities?	Y/N. How has COVID impacted people with disabilities in the community?
39	What is the community doing to help child headed HH?	
40	What is the community doing to help people with disabilities in the community?	
	Any other comment or observation on water or sanitation in this community?	

THANK YOU FOR YOUR TIME **END TIME STAMP: - - : - - AM/PM**

DISTRICT/WARD WASH LEAD (GOVERNMENT REPRESENTATIVE)

READ CONSENT FORM. DO YOU AGREE TO PARTICIPATE? Y/N

IF YES, CONTINUE WITH INTERVIEW.

Gender of individual: _____

	WATER SERVICES: NOW I AM GOING TO ASK YOU ABOUT WATER SERVICES	
1	What is your role in relation to water supply?	
2	How is the government involved in providing water services in communities?	
3	What technical assistance does the government provide to help with water services in communities?	
4	What is the government's overall strategy for increasing safe water services to communities?	
5	What are some of the most important components of the water strategy?	
6	What measures are put in place to ensure water quality and safety for the community?	
7	What is the role of private sector in water services?	
8	What are the most challenging aspects of increasing safe water services for all communities?	
9	What do you think / or what needs to be done to address these challenges?	
12	Within communities are there any inequalities of water access?	Y/N If yes, what is being done to resolve the inequalities?
14	Has access to safe water services improved or in the last 3-5 years?	Y/N Please explain
	SANITATION: NOW I AM GOING TO ASK YOU ABOUT SANITATION IN THE COMMUNITIES	
17	What is your role in relation to sanitation coverage/ encouraging people to use toilets?	
18	What are the most challenging aspects of increasing use of toilets for all communities?	
19	What needs to be done to address these challenges?	
20	Within communities are there any inequalities of access and use of toilets?	Y/N. If yes, please explain the inequalities / what is being done to resolve them.
22	What is government's strategy for increasing sanitation services to communities?	
23	What is the role of private sector in sanitation?	

24	Does the government provide any training/education for prevention of diarrheal diseases?	Y/N If yes, please explain the training/education
26a	Has the number of ODF communities increased in the last 3-5 years**?**	Y/N What do you think are the reasons?
27a	Can you discuss the challenges of "sliding back" to OD after ODF certification? Is this a problem? Please elaborate your thoughts and experience	
28	Do you have anything you want to share with us about WASH services in these communities?	
	GENDER EQUALITY: NOW I AM GOING TO ASK YOU ABOUT GENDER EQUALITY	
29	What is your office doing to promote gender equality?	
30	Please give examples of projects/programs that the government has done to promote gender equality:	
31	Are women are involved in WASH services?	Y/N If yes, please explain how women are involved and how they participate in WASH services If no, please explain why women aren't involved in WASH services
32	Are there women in leadership roles in WASH services?	Y/N Please provide some examples If no, please explain why there aren't women in leadership roles in WASH services
	COVID-19 RELATED CHALLENGES	
28	Has COVID-19 impacted water services / water availability in this community?	Y/N. If yes, please explain the impact
30	Has COVID-19 impacted the use of toilets/latrines?	Y/N. If yes, please explain the impact

32	Has COVID-19 impacted women and men the same**?**	Y/N. If yes, please explain the impact
35a	Do you have child headed HHs in this community?	Y/N. Has COVID impacted child headed HHs? Y/N. If yes, please explain the impact
36a	Do you have HHs with people with disabilities?	Y/N. How has COVID impacted the disabled people in the community?
37	What is the government doing to help child headed HH?	
38	What is the government doing to help people with disabilities in the community?	
39	What is the community doing to help child headed HH?	
40	What is the community doing to help people with disabilities in the community?	
	Any other comment or observation on water or sanitation services and coverage in communities?	

THANK YOU FOR YOUR TIME **END TIME STAMP: - - : - - AM/PM**

Annex B. Quantitative Survey

INTERVIEWER: I WILL START WITH SOME BASIC QUESTIONS ABOUT YOU AND YOUR HOUSEHOLD

A: DEMOGRAPHICS

1. Respondent ward number?

2. Respondent village name?

3. What is your household size?

4. Are you the household (HH) head?

5. If no, what is the age of the HH head (in years)?

6.What is the sex of the HH head?

7.What is the education level of the HH head?

7a. If other please specify:

8. What is your relationship to the HH head?

9. How old are you (in years)?

10. Sex of respondent?

10a. What is your education level?

10b. If other, please specify

11.What is the main religion of the HH?

12. What is the ethnicity of the HH?

13a. Has anyone in the HH had diarrhea in the last week?

13b. Was at least one of the people with diarrhea a child under the age of 5?

B: INCOME

14a. What is the main source of income household?

14b. Other main source of income (specify)

14c. How many household rooms are used for sleeping?

14d. Does this household own any livestock, herds, poultry or other farm animals?

14e. If yes, How many cattle?

14f. If yes, how many goats/sheep?

14g. If yes, how many donkey

14h. If yes how many poultry

15. Does your household have:

16. Does any member of this household have:

17. Does any member of this household have a bank account?

18. Does any member of this household belong to a village savings group?

19. What type of fuels does your household use for cooking?

20. If other fuel for cooking, specify

C: Water Source, Treatment, and Water Fetching Responsibilities

21a. What is the main source of drinking water for members of your HH?

21b. If other, please specify

22a. Do you treat your water in any way to make it safe to drink?

22b. If yes, what do you use for treatment? (Choose all that apply)

22c. If other, please specify

23a. Does your drinking water have an “acceptable” taste?

24a. Does your water have any odor when you bring it from the water point?

25a. How is your household drinking water mainly stored?

25b. If other, please specify

26a. Who usually fetches water for the HH?

26b. If other, please specify

27. How long does it take to go to the main water point, get water, and come back?

28. How many liters does your household collect each day?

29a Is your household able to collect all the water you need each day?

29b. If sometimes or never please explain

29c. In the last 30 days, has there been any time when your household did not have sufficient quantities of drinking water when needed?

30a. Do you always get water from the same water source?

30b. If no, please explain why not

31a. Is your household main water source always working?

32. When your household main water point breaks, how long does it normally take to get fixed?

33. In your opinion does the main water point get fixed quickly when it breaks?

D. SANITATION

34a. What kind of toilet facility do members of your HH usually use?

34b. If other, please explain

35. Who constructed your toilet?

36. Approximately what year was your toilet built?

37. Why did your HH decide to build a toilet?

38a. Have you done any maintenance to the toilet in the last year?

38b. If yes, how much money was spent on toilet maintenance in the last year (in USD equivalent)?

39a. Have you done any maintenance to the toilet in the last 5 years?

39b. If yes, how much money (in USD equivalent) was spent on toilet maintenance over the last 5 years?

40a. Have you done any upgrades to the toilet in the last year? (from Ubvip towards BVIP)?

40b. If yes, how much money was spent on upgrades in the last year?

41a. Have you done any upgrades to the toilet in the last 5 years?

41b. If yes, how much money was spent on upgrades in the last 5 years?

42. How far is your toilet located/(area used as toilet) from the houses? - - meters

43. Does the household have a separate toilet facility for males and females?

44a. At night do you feel safe to go to the toilet (area used as toilet)?

44b. If no, please explain why not

45a. The last time any young child (under 5 years) passed stool, what was done to dispose of the stool?

46a. What are the “critical” times for one to wash their hands? (enumerator, please DO NOT READ OPTIONS)

46b. Do you use soap to wash your hands at the critical times?

E. WATER COMMITTEE

47a. Who manages the improved water source(s) in your community?

47b. If other, please specify

48. Are you satisfied with the management of your water point?

48.a. If sometimes or never, please specify

49a. Do you pay any water point maintenance fee?

49b. If yes, amount (in USD)

49c. Amount (above) per:

49d. Is this amount affordable?

49e. Do you have any additional comments about the fee or affordability?

50a. Does the Water Point committee communicate with the community on income/repairs/expenses?

50b. Are there any further details you want to share regarding the communication of the Water Point Committee?

51. Was your community consulted on the original siting of the water point?

52. Was your community involved in planning on how to manage the water point?

F. HOUSEHOLD ROLES

53. INDICATE YOUR LEVEL OF AGREEMENT WITH THE FOLLOWING STATEMENTS

- Girls should be given equal opportunity in education
- Girls should not attend school when they are menstruating
- If my daughter wants, I think it's fine for her to work outside the home
- Women should be allowed to play leading roles in community WASH projects
- A woman should obtain permission from her spouse before she goes out to public places
- Women should be leaders in the community just like men
- The husband should be the decision-maker when buying major household items

54. ENUMERATOR to answer: Is this an intervention CWP village?

54a. INTERVENTION VILLAGE (IV): Did you / someone in your HH participate in the Chivi WASH project that ended in 2017?

54b. IV: If yes, did the participation in this project make a difference in you or your family's life?

54c. IV: If yes, please explain

54d. IV: If no, please explain why not

55a. IV: Did you change any of your practices because of the project?

55b. IV: What do you think should have been done better or differently?

G: COVID-19

56a. Has COVID-19 impacted your HHs access to water?

56b. If other, please specify

56c. Has COVID-19 impacted your community's ability to access repair parts for your water point?

56d. Has COVID-19 impacted your community's ability to access repair parts for your HH toilet?

56e. How has COVID-19 impacted meetings / communications within your community with the Water Committee?

56f. Has COVID-19 impacted women differently than men?

56g. If yes, please explain how

56h. How has COVID-19 impacted women's ability to participate in community-level activities / committees?

56i. Anything else you want to share about the impact of COVID-19 on water access or water services in your community?

INTERVIEWER: THANK YOU FOR YOUR PARTICIPATION. DO YOU HAVE ANY QUESTIONS FOR ME?

OBSERVE: Main material of housing floor

OBSERVE: Main material for roof of housing

OBSERVE: Main material of exterior walls

OBSERVE: toilet or latrine facility

OBSERVE: Handwashing facility within 10-15m of toilet facility?

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