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DEPARTMENT OF ENVIRONMENTAL SCIENCE



***Water, sanitation and hygiene challenges at rural health centres
- case of Nyanyadzi clinic, Chimanimani, Zimbabwe***

By

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**A research project submitted in partial fulfillment of the
requirements of the Bachelor of Science (Hons) degree in Safety,
health and environmental management**

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DECLARATION

To be complied with by the student

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I, Loveness Bindura, do hereby declare that this work is entirely the product of my own research and it was never used on any other academic work. All references to previously published work have been clearly shown.

Student signature.

Date: 20 May 2026

To be complied with by supervisor

This dissertation is suitable for submission to the faculty and has been checked for conformity with the faculty guidelines.

Supervisor's signature :

Date: 30 May 2026

Chairman signature

DEDICATION

I dedicate this research to my beloved mother Mrs. Bindura, whose unwavering love, sacrifices and support have been the foundation of my academic journey. Your guidance and prayers have carried me through every step of this work. This achievement is as much yours as it is mine.

ABSTRACT

Background: Access to safe water, proper sanitation and good hygiene (WASH) is essential for delivering quality healthcare. However, many rural health facilities in Zimbabwe continue to struggle with unreliable water supplies, inadequate sanitation infrastructure and limited hygiene resources. Nyanyadzi Clinic in Chimanimani is one such facility where these challenges threaten patient safety, infection control and the overall quality of healthcare services. Understanding the real situation at the clinic is important for improving health outcomes and supporting national and global WASH standards.

Objectives: The study aimed to assess the challenges affecting WASH service delivery at Nyanyadzi Clinic and to identify practical strategies that could improve patient safety and healthcare quality. Specifically, the research examined water availability and reliability, sanitation facilities, hygiene materials and practices and the quality of water used for consumption.

Methods: A mixed-methods approach was used to gain a comprehensive understanding of the situation. Quantitative and qualitative data were collected through questionnaires, focus group discussions, key informant interviews, observation checklists and water sampling and testing. This approach made it possible to combine measurable evidence with the experiences and perceptions of healthcare workers and patients.

Results: The findings revealed that the clinic faces significant WASH challenges. Water supply was found to be unreliable and often dependent on unsafe sources, especially during the rainy season. Sanitation facilities were limited and in need of maintenance, while shortages of hygiene materials affected consistent handwashing and infection prevention practices. Water quality testing

indicated potential risks to safe consumption. Despite these challenges, participants showed awareness of hygiene practices and expressed strong willingness to improve WASH conditions if adequate support, training and resources were provided.

Conclusions: The study concludes that improving WASH services at Nyanyadzi Clinic is essential for protecting patients, healthcare workers and the surrounding community. Strengthening infrastructure, improving access to hygiene resources, providing training and enhancing collaboration between stakeholders are key steps toward sustainable improvement. Continued commitment to WASH standards in rural healthcare facilities will play a critical role in reducing preventable diseases and improving healthcare delivery in Zimbabwe.

Keywords: Water, sanitation and hygiene (WASH); rural health facilities; water quality; infection prevention; healthcare services; Zimbabwe.

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LIST OF ACRONYMS AND ABBREVIATIONS

WASH	Water, sanitation and hygiene
MoHCC	Ministry of Health and Child Care
KII	Key Informative Interview
FGD	Focus Group Discussions
WHO	World Health organization

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CHAPTER 1: INTRODUCTION

1.Introduction

1.1 Background to study

Water, sanitation, and hygiene (WASH) are essential for public health yet access to safe water and adequate sanitation remains a major concern globally (WHO, 2025). The United Nations set Sustainable Development goals that include improving wash to make life better and improve health (Gomathi, 2023). The World Health Organization says about 2 billion people globally do not have safe drinking water and most of them live in rural areas of developing countries (WHO, 2025). In 2018, the World Health Organization (WHO) called for action on WASH in healthcare facilities (HCFs) and the Joint Monitoring Program (JMP) reported on global WASH conditions in health centers (UNICEF, 2024). WASH in HCFs means having clean water, toilets and safe waste management in all health places like clinics and hospitals (UNICEF, 2024).

In Africa, many low- and middle-income nations have big WASH problems in health services, especially in rural places (Berihun et al., 2024). Poor WASH in health centers can cause diseases and stop good health care (Tseng et al., 2025). Studies show that 72% of people without basic sanitation live in rural zones and many African governments still lack money and plans for rural WASH (Smets and Kennedy Walker, 2024). The African Development Bank in 2025 reports that over 60 % of rural health centers in Sub-Saharan Africa lack proper sanitation systems. Healthcare facilities need clean water, good sanitation, waste removal and hygiene to keep patients safe (WHO, 2025).

In Zimbabwe, rural health centers like Nyanyadzi Clinic face serious WASH challenges that affect the quality of health services due to lack of reliable water sources which can easily become contaminated during rainy season (Moyo, 2025). In The Ministry of Health and Child Care reported nearly 43 % of rural health centers in Zimbabwe do not have reliable safe water, making it hard to give good care. Waterborne diseases such as cholera and dysentery are common, and they make up about 40 % of medical cases in rural clinics with many outbreaks during the rainy season when water sources get contaminated (Moyo, 2025). The Ministry of Health in Zimbabwe focuses more on medicines than preventive WASH measures and rural health centers receive less attention than urban clinics (Mhike, 2025). This study aims to understand the specific WASH challenges at Nyanyadzi Clinic so that improvements can be made to protect patients and meet national health goals.

1.2 Problem statement

Nyanyadzi Clinic faces significant challenges in providing adequate water, sanitation and hygiene (WASH) services which increases the risk of preventable diseases such as cholera and dysentery. Like many rural health centers, the clinic struggles with unreliable access to clean water, inconsistent water quality, limited availability of essential hygiene supplies and inadequate sanitation facilities. These conditions place both patients and healthcare workers at risk and compromise the overall quality of care (Moyo, 2025). In 2025 The Ministry of Health and Child Care reports that 43% of rural health facilities in Zimbabwe struggle with access to safe water which directly affects healthcare delivery. However, Rural health centers rely heavily on general hands or nonprofessional staff who often have limited training and knowledge in WASH practices (Chikodzi, 2025). Although these workers play a crucial role in maintaining hygiene standards, the lack of proper training can contribute to higher infection rates and disruptions in healthcare

services. This study seeks to fill this gap by exploring the local barriers to WASH access at Nyanyadzi Clinic and providing insights for improvement. Despite the importance of WASH in healthcare settings, there is limited context-specific information on the challenges faced at Nyanyadzi Clinic. This study therefore aims to explore the local barriers to effective WASH service delivery at the clinic and generate practical insights that can support improvements in patient safety and healthcare outcomes.

1.3 Aim and objectives

1.3.1 Aim

To assess the challenges affecting water, sanitation, and hygiene (WASH) service delivery at Nyanyadzi Clinic and identify practical strategies to improve patient safety and healthcare quality.

1.3.2 Objectives

1. To evaluate the availability and reliability of water supply at Nyanyadzi Clinic.
2. To assess the condition and adequacy of sanitation facilities at the clinic.
3. To examine the availability and use of hygiene materials and practices among staff and patients.
4. To investigate the quality of water available for consumption at Nyanyadzi clinic.

1.4 Research Questions

1. What is the current state of water availability and reliability at Nyanyadzi Clinic?
2. How adequate and functional are the sanitation facilities at the clinic?
3. What hygiene materials are available, and how are they used by staff and patients?

4. Is the available water at Nyanyadzi clinic recommendable for consumption?

1.5 Significance of the study

This study is important because it addresses critical gaps in water, sanitation, and hygiene (WASH) service delivery at Nyanyadzi Clinic, which directly affect patient safety and the quality of healthcare. By identifying the specific challenges faced at the clinic, the study will provide evidence that can guide improvements in WASH practices and infrastructure. The findings will be valuable to clinic management and healthcare workers, as they will highlight practical areas that require attention, such as water supply, sanitation facilities and staff training. This can support better infection prevention and control measures, ultimately reducing the spread of preventable diseases. At a broader level, the study will contribute to the understanding of WASH challenges in rural health facilities in Zimbabwe. Policymakers and health authorities may use insights to inform planning, resource allocation, and the development of targeted interventions aimed at improving healthcare delivery in similar settings. Additionally, the study will add to existing academic knowledge on WASH in healthcare facilities and may serve as a reference for future researchers interested in public health, environmental health, or rural healthcare systems.

1.6 Assumptions

- Adequate data on WASH conditions is accessible at Nyanyadzi Clinic.
- Healthcare staff and patients accurately report WASH-related challenges.
- Findings from one clinic are applicable to similar rural healthcare facilities in Zimbabwe.

1.7 Limitations

- The study focuses solely on Nyanyadzi Clinic, limiting broader generalization.
- Potential bias in self-reported data from healthcare staff and patients.

- Limited scope in addressing all factors influencing healthcare delivery (staffing and equipment).

1.8 Delimitations

- Research is confined to WASH challenges at Nyanyadzi Clinic in Chimanimani, Zimbabwe.
- The study will not explore non-WASH-related healthcare infrastructure issues. Focus on healthcare delivery, public health and occupational safety within the clinic's context only.

CHAPTER 2: LITERATURE REVIEW

2.Literature Review

2.1 Introduction

This chapter provides a review on the global and regional issues associated with WASH, the WASH situation in Zimbabwe, WASH Infrastructure in rural health centers, health impacts of inadequate WASH services and debates and controversies in WASH access. It reviews the adoption of WASH interventions with their knowledge on clinic operations and patients' safety. Lastly, it provides a review on microbial water quality assessment, current evidence, practices and relevant policy frameworks guiding WASH improvements in rural health facilities in Zimbabwe and a summary concluding the literature reviewed by the chapter.

2.2 Global and Regional Issues Associated with WASH

Globally, WASH in healthcare settings is a significant challenge, especially in rural areas. 40% of rural health centers worldwide lack access to basic water and sanitation facilities which increases the risk of infections especially in places with high patient traffic such as maternity wards and emergency care units (Smith, 2022). In Africa, the problem is even more pronounced where only 30% of rural healthcare facilities have reliable water supply systems (Chavez, 2025). Poor sanitation, including the absence of proper waste disposal methods and safe toilets also contributes to the spread of infectious diseases such as cholera and dysentery (Chirwa, 2024).

These issues are particularly important in rural areas of developing countries where poverty, underdeveloped infrastructure, and limited access to healthcare exacerbate the challenges. The World Health Organization (WHO) (2025) reports that one in five health facilities in low-income

countries lacks access to basic water services. This situation undermines the quality of care provided and lowers patient safety especially in areas with limited public health resources.

Table 2. 1: Comparison of WASH Access in Healthcare Facilities

Region	Access to Basic Water	Access to Basic Sanitation	Key Challenge
High-income countries	>95	>90%	Maintenance and sustainability
Global average	~80%	~70%	Inequality across regions
Sub-Saharan Africa	<50%	<40%	Infrastructure and funding gaps
Rural Africa	<30%	<25%	Severe resource limitations

This comparison shows that rural Africa is disproportionately affected, which explains why many studies focus on this region.

2.3 The WASH Situation in Zimbabwe

Table 2. 2: Common WASH Challenges in Rural Zimbabwean Clinics

WASH Component	Common Issue	Impact
Water supply	Unreliable or seasonal	Disrupts clinical operations.
Sanitation	Broken or inadequate toilets	Increases infection risk.
Hygiene	Lack of soap/PPE	Poor infection control
Waste management	Improper disposal	Environmental contamination.

In Zimbabwe, the WASH situation in rural health centers is critical with many health facilities experiencing significant challenges related to water, sanitation and hygiene. According to Moyo (2025), over 60% of rural health clinics in Zimbabwe do not have access to reliable water sources, making it difficult to maintain basic hygiene standards for both patients and healthcare workers. This is particularly concerning at Nyanyadzi Clinic in Chimanimani, where the clinic relies on unsafe water sources such as rivers and unprotected wells that are prone to contamination (Zhou, 2023).

The lack of access to proper sanitation facilities is another pressing issue. A study by Kamusoko (2025) found that approximately 75% of rural health centers in Zimbabwe do not have functioning toilet systems that meet basic standards for hygiene and safety. This situation increases the likelihood of waterborne diseases such as cholera and dysentery which are prevalent in areas with

inadequate sanitation services (Chigara, 2024). At Nyanyadzi Clinic the absence of proper waste disposal systems further contributes to the risk of infection especially during the rainy season when waste is washed into water sources.

In rural Zimbabwe, the effects of poor WASH conditions are evident in the high rates of preventable diseases. Over 50% of the population in rural areas is exposed to unsafe water and inadequate sanitation leading to a higher incidence of waterborne diseases, which in turn puts pressure on the already limited healthcare services (Chirwa, 2024).

2.4 WASH Infrastructure in rural health centers

WASH infrastructure in rural Zimbabwe is a significant challenge that hinders the provision of effective healthcare. In 2025 The Ministry of Health and Child Care reports that nearly 43% of rural health facilities lack access to reliable water sources, leaving health workers and patients vulnerable to waterborne diseases. Rural clinics such as Nyanyadzi Clinic are often left with outdated sanitation facilities and unreliable water systems, creating a conducive environment for the spread of disease (Chikodzi, 2025). Many rural areas rely on seasonal water sources and inadequate waste disposal systems, further exacerbating the WASH crisis (ADB, 2025). Unlike urban health centers that benefit from more reliable water systems whilst rural health centers face unique barriers including poor infrastructure and limited resources which prevent effective healthcare delivery. The use of toilets that are in bad condition puts the health facility at risk of preventable diseases, such as the one in fig 1 shows.



Figure 1: Toilet block at a rural clinic in Nyanyadzi

2.5 Health impacts of inadequate WASH services

Inadequate WASH services in rural health centers directly contribute to the spread of preventable diseases. Diseases like cholera, dysentery and typhoid are prevalent in rural Zimbabwe due to poor sanitation and water contamination (Moyo, 2025). The lack of proper handwashing and waste management in healthcare settings exacerbates the spread of these diseases. Waterborne diseases account for a significant proportion of illnesses in rural health centers, placing a heavy burden on healthcare facilities that are already struggling with limited resources (WHO, 2025). The African Development Bank in 2025 further underscores that poor WASH conditions in rural health centers contribute to longer hospital stays, higher treatment costs and increased mortality rates making the case for urgent WASH improvements in these settings.

Table 2. 3: Health Effects of Poor WASH in Clinics

Issue	Immediate Effect	Long-term Impact
Contaminated water	Diarrheal diseases	Increased mortality.
Poor sanitation	Infection spread	Disease outbreaks.
Lack of hygiene	Cross-contamination	Reduced trust in healthcare
Poor waste management	Environmental hazards	Community health risks

2.5 Debates and controversies in WASH access

A key debate in the literature centers around the main causes of poor WASH access in rural health centers. Some scholars argue that insufficient funding is the primary barrier to improving WASH services in rural clinics (Chikodzi, 2025). The role of governance issues such as poor resource allocation and lack of local management capacity as critical factors contributing to inadequate WASH infrastructure (Zhou, 2023). This debate is significant as it influences the types of interventions required to address WASH challenges. While increasing funding is important (Zhou, 2023) it suggests that improving governance and management practices at local levels may be just as essential to achieving sustainable improvements in WASH services. This study aims to explore both perspectives to understand the root causes of WASH challenges at Nyanyadzi Clinic and propose practical solutions.

2.6 Gaps in existing knowledge

While much research has been conducted on WASH challenges in rural health centers, significant gaps remain. Studies such as those by Moyo and Chikodzi, (2025) have explored the broader infrastructure and funding challenges but have not delved into the localized barriers faced by specific clinics like Nyanyadzi. Furthermore, while much of the literature compares urban and rural WASH services, few studies explore the socio-cultural factors that influence hygiene behaviors and water use in rural communities. Understanding local cultural practices and community engagement is crucial for designing effective interventions (Zhou, 2023). This study aims to address these gaps by providing an analysis of the WASH challenges at Nyanyadzi Clinic focusing on both infrastructural and socio-cultural factors.

2.7 Microbial Water Quality Assessment

Microbial water quality is a key factor in the prevention of infections in healthcare settings. In Zimbabwe, many rural health centers including Nyanyadzi Clinic lack the resources to assess the microbial quality of their water supply regularly. A study by Chigara (2025) found that around 40% of water sources in rural health centers in Zimbabwe are contaminated with harmful microorganisms including *E. coli* and *Salmonella* which are responsible for a range of gastrointestinal diseases. These contaminants are typically introduced into water sources through improper waste disposal, lack of sanitation and contamination from agricultural runoff.

The absence of regular microbial testing in rural clinics means that the extent of water contamination is often unknown which increases the risk of disease outbreaks. A report by WHO (2025) indicates that up to 60% of health facilities in rural Zimbabwe rely on untreated water sources leading to contamination with harmful pathogens. At Nyanyadzi Clinic the lack of a water

quality monitoring system means that patients and healthcare workers remain at risk of exposure to these harmful microbes (Zhou, 2023).

Chirwa and Munyoro (2025) emphasize the importance of regular microbial testing and water treatment in reducing the spread of waterborne diseases in rural health facilities. They argue that improving access to safe water and implementing water quality monitoring systems are crucial steps in protecting public health in Zimbabwe's rural health centers.

Table 2. 4: Common Water Contaminants and Effects

Contaminant	Source	Health Effect
E. coli	Fecal contamination	Diarrhea
Salmonella	Poor sanitation	Typhoid
Coliforms	Environmental contamination	Gastrointestinal illness

2.8 Policy and Strategic Frameworks for WASH Improvement

The government of Zimbabwe has recognized the importance of improving WASH services in rural health centers and has developed several policies to address these challenges. The Zimbabwe National Water Authority (ZINWA) is working to improve water access in rural areas through the installation of boreholes and water treatment systems (Chigara, 2025). However, the implementation of these policies has faced significant challenges including inadequate funding, lack of technical expertise and limited community involvement (Kamusoko, 2025). A report by

WHO (2025) reveals that only 12% of rural health clinics in Zimbabwe are fully compliant with national WASH standards highlighting the gap between policy intentions and actual implementation.

The Zimbabwean Ministry of Health and Child Care has also developed guidelines for infection prevention and control in healthcare facilities which include recommendations for improving WASH conditions. These guidelines emphasize the need for regular water quality monitoring, safe waste disposal, and proper sanitation practices in rural clinics (Mhlanga, 2025). However, as noted by Chirwa and Munyoro (2025), only 15% of health facilities in rural Zimbabwe have implemented these guidelines effectively.

2.9 Theoretical Framework

2.9.1 Health Belief Model (HBM)

The Health Belief Model (HBM) is a psychological theory that explains health behaviors by focusing on individuals' perceptions of the severity of health risks and the benefits of taking preventive actions. In the context of Nyanyadzi Clinic, HBM can help understand how healthcare workers and patients perceive the risks associated with poor WASH conditions and how these perceptions influence their behaviors, such as handwashing and proper sanitation use. HBM has been used in similar settings, particularly in sub-Saharan Africa to analyze hygiene behaviors and adoption of sanitation practices (Moyo, 2025). It is important for this study as it directs attention to the perceptions and behaviors of individuals at Nyanyadzi Clinic, providing insights into how behavior change interventions can be designed. This theory will guide the investigation of the psychosocial factors that contribute to inadequate hygiene practices at the clinic.

2.9.2 Systems Theory

Systems Theory focuses on understanding the interconnectedness of various components within a system, such as the interaction between infrastructure, resources and human behavior. In the context of WASH in rural health centers, Systems Theory helps to identify how the lack of reliable water sources, poor sanitation infrastructure and ineffective management interact to undermine health outcomes (Wilson, 2025). The theory has been applied in rural health systems to explore how different elements work together or against each other in delivering healthcare services (Zhou, 2025). It is important for this study because it allows for a comprehensive understanding of how the WASH challenges at Nyanyadzi Clinic are not only about individual behaviors but also about the broader healthcare system and its resources. This theory will guide the study in exploring systemic barriers that hinder effective WASH service delivery.

Both the Health Belief Model (HBM) and Systems Theory are necessary for a comprehensive understanding of the WASH challenges at Nyanyadzi Clinic. The HBM will provide insights into the individual behaviors and perceptions of patients and healthcare workers, while Systems Theory will help explain how broader systemic issues, such as infrastructure and governance, contribute to the challenges. By integrating both theories, the study will address both the individual and systemic factors that influence WASH practices at Nyanyadzi Clinic. Using multiple theories allows for a more holistic analysis of complex issues, as it considers both behavioral and structural aspects. In literature, using more than one theory helps create a more comprehensive framework for understanding and addressing multifaceted issues like WASH challenges in rural health centers.

2.10 Summary

In conclusion, the literature reveals that rural health centers in Zimbabwe, particularly Nyanyadzi Clinic face significant WASH challenges that undermine health outcomes. These challenges are compounded by inadequate infrastructure, unreliable water sources and poor hygiene practices. Theories like the Health Belief Model and Systems Theory provide useful frameworks for understanding both individual behaviors and systemic barriers that contribute to WASH deficiencies. Key debates in the literature focus on whether funding or governance is the primary cause of poor WASH services in rural areas. Research gaps identified include the need for more localized studies that explore specific barriers at individual clinics and the role of socio-cultural factors in shaping WASH practices. This study aims to address these gaps, providing valuable insights into the WASH challenges at Nyanyadzi Clinic and offering practical solutions to improve healthcare delivery in rural Zimbabwe.

CHAPTER 3: MATERIAL AND METHODS

3. Materials and Methods

3.1 Description of the Study Area

Nyanyadzi Clinic is an administrative ward under Chimanimani Rural District Council, approximately about 35 to 40km Northwest of Chimanimani town in region 5. In this region there are high temperatures and low rainfall patterns. It is the only health facility in ward 8 and it covers 10 villages with a population of 13 120 as of 2025. The clinic offers OPD, maternity and child services.

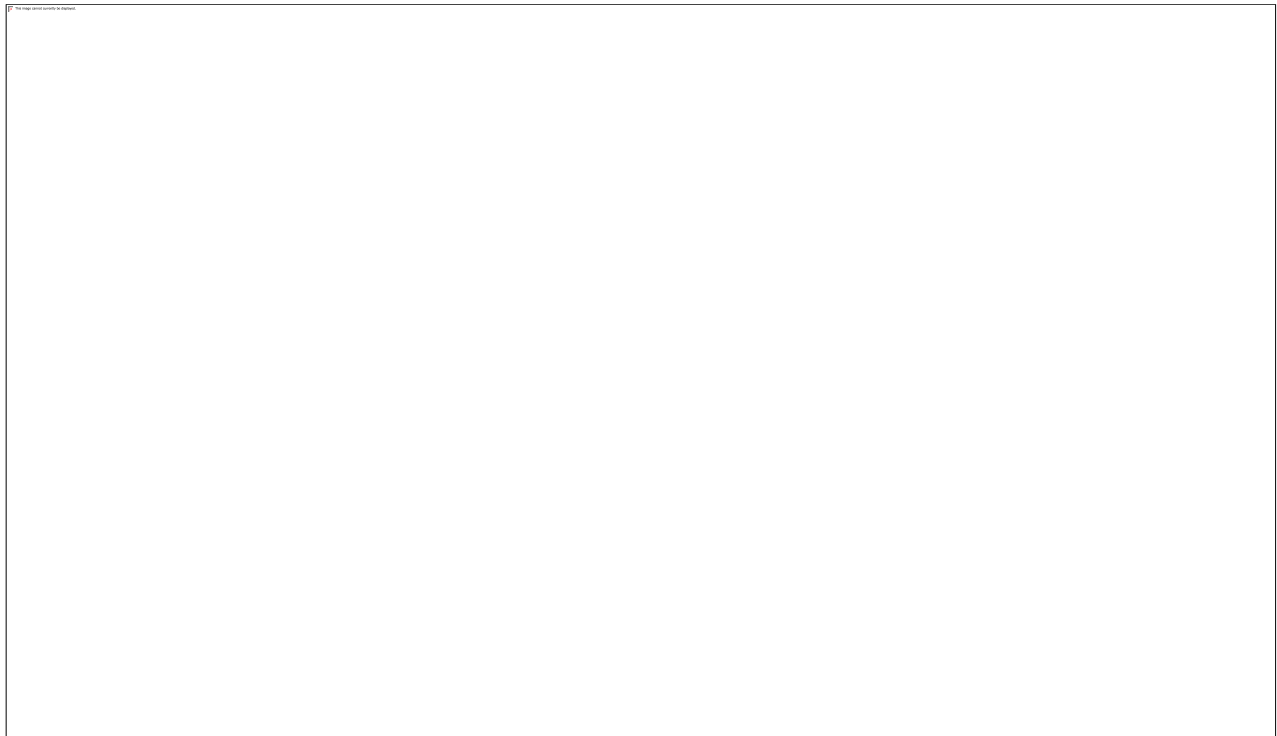


Figure 2 : The map shows the location of Nyanyadzi Clinic, Chimanimani, Zimbabwe

Borehole and Council water supply are the main sources of water for the clinic. The borehole is used to supply water and is equipped with a solar pump, feeding a 5000l elevated tank.

Table 3. 1: 2025 demographic data for Nyanyadzi clinic

Total population	Under 1year	1-4years	Under 5 years	5- 14years	15 years+	Expected pregnancy	WBCA
13 120	446	1561	2007	3752	7373	656	2873

3.2 Research design

A mixed methods descriptive case study design was used. The qualitative methods explored staff and patient practices and institutional challenges through interviews, observation checklists and focus group discussions. A semi structured closed ended questionnaire administered to nurses, nurse aids, environmental technician staff and community members including patients, residents and village health workers. This was done to collect numerical data on the levels of WASH knowledge, infrastructure availability and service practices. The research collected qualitative data through primary sources including interviews, focus group discussions and observations. Quantitative methods measured water quality parameters, counted facilities and quantified hygiene material availability. The mixed-methods design facilitated triangulation and allowed flexibility in data collection and analysis. This enables adaptation of strategies based on initial findings for further investigation (Clark, 2024).

3.3 Research instruments

3.3.1 Semi structured closed ended questionnaire

A closed-ended semi-structured questionnaire (Appendix C) was developed using existing literature (Clark, 2024) to collect data on WASH challenges at Nyanyadzi Clinic, Chimanimani, Zimbabwe. The questionnaire was evaluated by a public health expert and an academic before being given to 20 healthcare workers from clinics participating in the study. It was then revised before being used for data collection. The questionnaire had 35 items designed into 3 sections: Section A had 5 items on demographic data (age, gender, educational level), Section B had 15 items on sanitation and hygiene practices at the clinic, Section C had 15 items on water availability and hygiene practices at the clinic. The piloting took approximately 30 minutes to complete for a participant.

The purpose of the questionnaire was to collect data on WASH challenges in rural clinics in Zimbabwe. It was considered the most appropriate tool because of its simplicity and reliability (Mataranyika, 2025). It has been used in similar studies (Chikodzi, 2025). However, its main limitation or weakness is that it may not fully capture complex perceptions and experiences of clinic staff (Gore and Nyandoro, 2025). This was addressed in the study by using a follow-up interview with selected respondents to provide qualitative insights.

3.3.2 Focus group discussions (FGDs)

A mixed focus group discussion (FGD) guide (Appendix E) was developed based on literature (Zvimba, 2025) to collect qualitative data on water, sanitation and hygiene (WASH) challenges at Nyanyadzi Clinic. The guide was designed and evaluated by a professional public health expert before it was given to the participants. The groups consisted of 6-8 people, all from the staff of the

clinic and patients. An FGD has the advantages of in-depth discussions, gaining insights from group interactions and the ability to triangulate data with other research methods (Gore, 2025). However, its main limitations include social desirability bias and potential dominance of certain voices in the discussion. To address these limitations, the FGD guide was developed based on earlier studies (Zvimba and Mataranyika, 2023). The research instrument has been used in similar research settings, including studies on WASH practices in rural health facilities in Zimbabwe (Chikodzi, 2025).

The FGD was used to gain more insights from health workers, which could not be requested by the questionnaire. A group of all adults above 18 years old, health workers were the target participants. Each FGD lasted for approximately 60 minutes. The FDGs were audio/video recorded with the consent of the participants. Participants assumed pseudo names during discussions to maintain confidentiality.

3.3.3 Key informant interviews (KII)

A semi-structured interview guide (Appendix F) was developed from literature (Lee, 2021) to facilitate key informant interviews aimed at healthcare professionals, clinic administrators and WASH officers. The interviewees were selected based on their involvement and expertise in WASH practices at Nyanyadzi Clinic. Pilot interviews lasted for about 45 minutes. To accommodate non-responses, the KII guide was designed with flexible wording and optional prompts that allowed interviewees to skip questions without pressure or judgment (Chikodzi, 2022). The research instrument has been used in several similar studies (Gore, 2025). However, its main disadvantage is response bias (Kuma et al., 2025). In the current study, this limitation was reduced by utilizing diverse and experienced interviewees, including those from other clinics for

comparative insights (Zvimba and Mataranyika, 2025). The interviews were conducted face to face and via online platforms with the consent of the interviewees.

3.3.4 Participant observations checklist

An observational checklist (Appendix D) designed from literature (Lee et al., 2025; Zvimba and Mataranyika, 2025) was used to observe WASH practices among general health workers while at work. The tool was designed to observe practices such as handwashing, sanitation practices, water handling and hygiene behaviors. The visual observations were conducted using a standardized checklist, meaning that a uniform and consistent set of criteria was applied to observe general health workers practices across all participants. The checklist guide contained similar questions that assessed self-reported WASH practices in the questionnaire. An observation checklist can be used to gather objective data on WASH practices, identify potential risks and provide feedback to general health workers on their practices (Chikodzi, 2025). The tool was reportedly used in other similar research settings (Gore, 2025). However, it has limitations for behavioral observation bias (Moyo and Chikodzi, 2025). To minimize these limitations, multiple observations were made and multiple observers were used.

3.3.5 Water sampling and Testing Kits

Sampling was done over a period of two months in March and April 2026. Water samples were collected from the clinic's water sources. The samples were tested for microbiological parameters to assess the water quality using the potatest and wegtech field test kit. The kit has a membrane filtration unit, incubator, turbidity tube, pH comparator and DPD1 chlorine comparator. The kit was selected because it allows microbiological analysis on site without laboratory access (WHO, 2017).

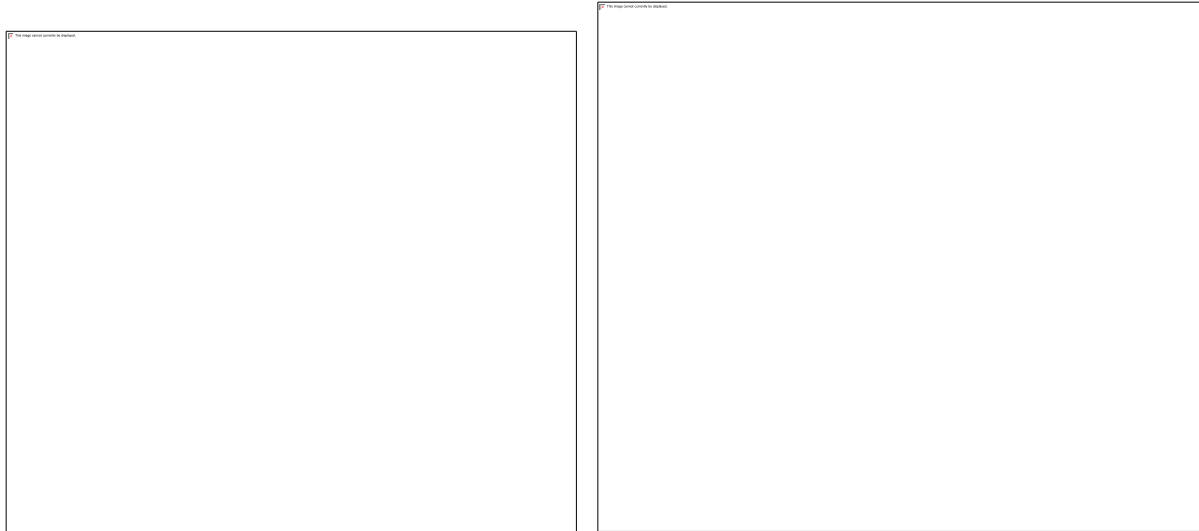


Figure 3 : Potatest and wegtech field test kit.

3.4 Determination of sample size

Small samples of less than 10 participants were used for each category of the study. This was done to reduce misleading information and for easy data management.

3.5 Recruitment and selection of participants

Random sampling method was used where every eligible health worker has an equal chance of selection, so the study could gather detailed information from Health Workers. Because the selection was random, the approach focuses on achieving a broad, unbiased sample rather than targeting specific individuals with extensive WASH knowledge.

3.6 Ethical Considerations

Ethical approval was granted by the Medical Research Council of Zimbabwe. Permission was obtained from Manicaland Provincial Medical Director (Appendix B). The purpose of the research was clearly explained to the participants and protected their identity and confidentiality. Assurance

was given to the participants that the information collected would be kept confidential. The participants were free to withdraw from the study at any time they felt like.

3.7 Data Collection

3.7.1 Questionnaire

Data was collected through structured questionnaire administered to 30 patients and 8 staff. The questionnaires were designed to assess knowledge of WASH practices and related challenges. Participants were briefed about the study, reminded that participation is voluntary and that they were able to withdraw at any time and the process was set up to gather honest and anonymous feedback.

3.7.2 Focus group discussions (FGDs)

Data was collected through Focus group discussions involving health care workers, patients and village health workers as shown in **Figure 4**. The FGDs were semi structured, allowing participants to give open ended responses about their experiences with WASH challenges and suggestions for improvement. Each group had 6 participants and was guided by key questions that encourage free conversation and sharing of experiences. The discussion was audio-recorded for transcription and analysis to capture a diverse range of perspectives (Chigara, 2025)

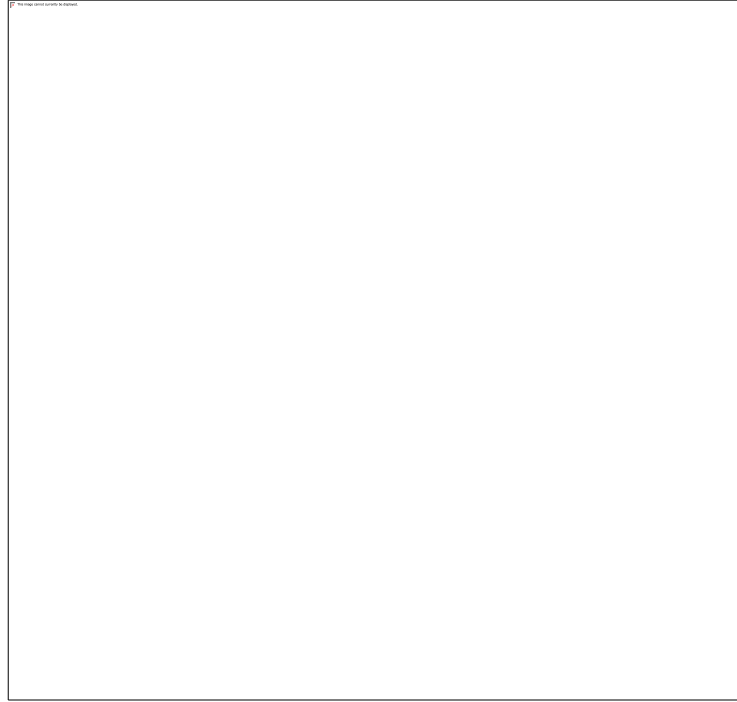


Figure 4 : Focus group discussions preparations involving health care workers and patients

3.7.3 Key informant interviews (KIIs)

Semi-structured interviews were conducted with a range of stakeholders including Clinic staff, community members and local water authorities. The interviews explored experience with water quality issues, challenges in maintaining safe water and sanitation, community perceptions of water quality and its health impact and efforts of local authorities to provide safe water to the clinic and surrounding areas. The interviews were recorded with permission for later transcription and thematic analysis, allowing for flexibility to probe deeper insights into water management and sanitation practices.

3.7.4 Participant observations checklist

Participant observations were conducted at Nyanyadzi Clinic using a structured observation checklist. Daily hygiene and sanitation practices, water usage and interactions between staff and

patients were observed. Detailed field notes were taken during these observations to capture specific behaviors and conditions related to WASH practices. These notes were analyzed together with other data sources providing a comprehensive view of the clinic's WASH practices.

3.7.5 Water Sampling and Testing

Water samples were collected at four different sites including water from kitchen taps, maternity taps, boreholes and consultation room taps to assess water quality. The sampling was done by firstly wearing laboratory gloves then using alcohol swaps to wipe the tap mouth and borehole mouth. The taps and borehole were opened to run for 30seconds, and samples were collected using 290ml Sodium Thiosulphate sampling bottles. Samples were numbered and then labeled with details (location, date and time of collection) **Figure 5**. Two samples per point were collected in the morning and afternoon. 100ml of each sample was filtered through 0.45 micrometers membrane and incubated at 44-degree Celsius for 24 hours using the wegtech field test kit to detect E. coli. All procedures followed Standard Methods for the Examination of Water and Wastewater (Milofiz, 2017).

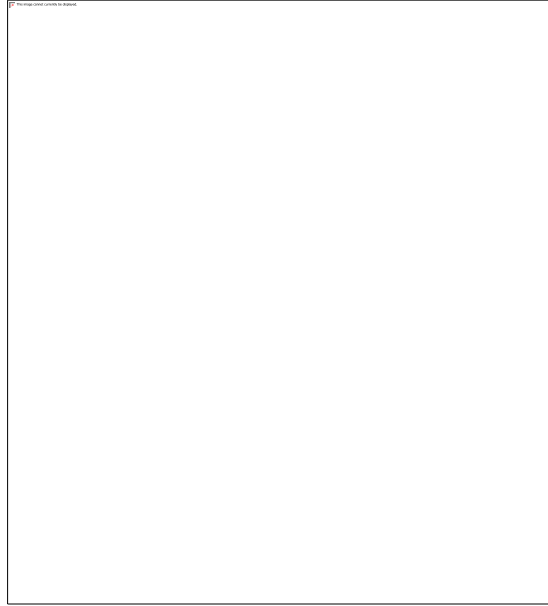


Figure 5: Preparation of water sample containers

3.8 Data Management

Questionnaire responses were rated on a 5-point Likert scale (Reddy et al, 2020 and Oluwamuyiwa et al., 2021). Questionnaire and checklist were entered into Microsoft Excel 2021. Data was cleaned by checking for missing values and outliers. Each entry was double checked against field sheets. Water quality results were recorded on field data sheets and transferred to excel the same day.

3.9 Quality Control Procedures

For water testing distilled water was used as the control and a duplicated sample were processed with each batch to check for contamination and precision. The wegtech field test kit incubator was calibrated daily. Questionnaires were pretested and Cronbach's alpha was calculated at 0.82 to pretested reliability.

3.10 Statistical analysis

Objective 1: assessed the availability and reliability of water supply. Mean hours of water availability per day were calculated for each water point. Frequencies and percentages were also used to describe the functional status of water sources.

Objective 2: evaluated the condition and adequacy of sanitation facilities. Descriptive statistics including ratios and percentages were used. The functional toilet-to-patient ratio was calculated and compared with World Health Organization (WHO) and Ministry of Health and Child Care (MoHCC) standards to determine compliance levels.

Objective 3: examined the availability and use of hygiene materials. Chi-square test was used to determine whether there was a statistically significant association between staff category and handwashing compliance practices. The significance level of $p < 0.05$ was considered significant.

Objective 4: investigated water quality for consumption. Laboratory results for pH, turbidity, free chlorine and E. coli counts were compared against Standards Association of Zimbabwe (SAZ 560:1997) and World Health Organization drinking water quality guidelines. A paired sample t-test was performed to compare morning and afternoon E. coli counts from the same sampling points to determine whether there was a significant difference in contamination levels over time.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 Demographic information of Respondents.

Table 4.1 shows the demographic profile of the 38 questionnaire respondents who participated in the study. Most respondents were 78.9% patients. Female respondents constituted 76.3%. The modal age group was 30-49 years at 47.4%.

Table 4. 1: Demographic information of participants (n=38)

Variable	Category	Frequency	Percentage %
Respondent type	Patient	30	78.9
	Nurse	4	10.5
	Nurse Aide	2	5.3
	EHT	1	2.6
	General Hand	1	2.6
Gender	Male	9	23.7
	Female	29	76.3
Age group	18-29 years	14	36.8
	30-49 years	18	47.4
	50+ years	6	15.8

4.2 Availability and Reliability of Water Supply.

Table 4.2 shows the status of water availability across all five assessed water points at Nyanyadzi clinic. Mean hours of water availability across all five functional points were 3.7hrs per day. The borehole was not functioning for 9 days in March 2026. The consultation room tap had 0 hours of supply during the assessment week. From interviews all staff reported no water after 1400hrs daily at all points except the borehole.

Table 4. 2: Water supply status at Nyanyadzi clinic

Water Point	Functional Status	Mean Hours/ Day Available
Borehole	Yes	6.2
Kitchen Tap	Yes	3.5
Outside Tap	Partial	2.8
Consultation Room	No	0.0
Maternity Tap	Partial	2.1
Storage Tank Outlet	Yes	4.0

4.3 Condition and availability of sanitation facilities.

Table 4.3 shows the results of the facility audit for sanitation. Two of four facilities were functional. None of them had soap at the handwashing station. The functional toilet to patient ratio was 1:52 based on average daily attendance of 52 patients.

Table 4. 3: Shows sanitation facility audit results, n=4

Facility Type		Number	Functional	Clean	Has Door	Soap at handwashing station
Audited						
Patient	VIP	2	1	0	1	0
Latrine						
Staff toilet		1	1	1	1	0
Maternity		1	1	0	0	0
Latrine						

4.4 Availability and use of hygiene materials and practices.

Figure 4.1 shows staff handwashing compliance observed during the study period. **Table 4.4** presents hygiene material availability. **Fig 4.1** shows that 25% of staff were observed washing hands before patients contact.

Table 4. 4: Shows hygiene materials availability and practices

Indicator	Result
Soap available during spot checks	4 out of 10 checks
Alcohol-based hand rubs available	0
Staff observed washing hands before patient contact	2 out of 8 staff

Patient observed washing hands after toilet use	0 out of 30 patients
Handwashing posters displayed	1 of 4 locations

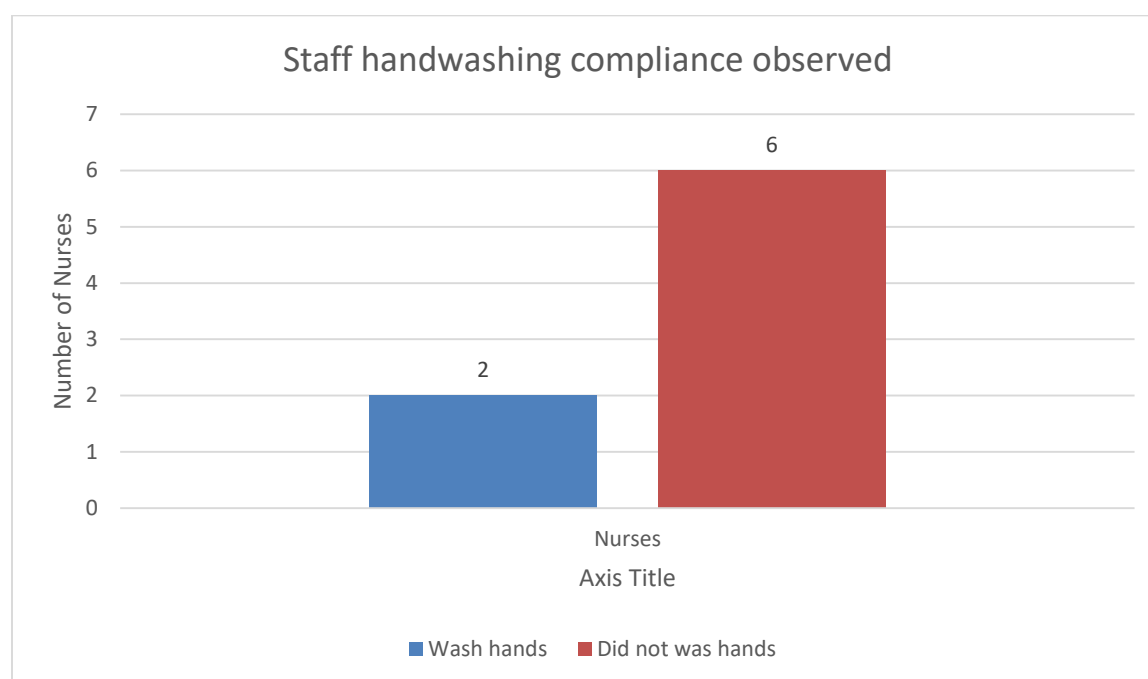


Figure 6: Observed staff handwashing compliance before patient contact, n= 8

4.5 Quality of water for consumption

Table 4.5 shows water quality test results from the four assessed points against SAZ 560:1997 limits. Figure 4.2 shows E. coli levels per sampling point and time. None of the samples met the microbiological limit of 0 CFU/100ml. Six of eight samples exceeded the turbidity limit of 5 NTU. All samples had 0.0mg/L free chlorine. **Figure 4.2** shows E. coli counts increased from sources to

point of use and were higher in afternoon samples. A paired t-test showed afternoon E. coli counts were significantly higher than morning counts, $t= 5.14$, $df =3$, $p=0.003$.

Table 4. 5: Water quality test results from the four assessed points against SAZ 560:1997 limits

Sample ID	Point	pH	Turbidity NTU	Free Cl ₂ mg/L	E. coli CFU/ 100ml	Compliant with SAZ 560?
NO1	Borehole AM	7.2	3	0.0	12	No
NO2	Borehole PM	7.1	4	0.0	28	No
NO3	Kitchen Tap AM	7.3	6	0.0	31	No
NO4	Kitchen Tap PM	7.2	8	0.0	48	No
NO5	Maternity Tap AM	7.0	8	0.0	45	No
NO6	Maternity Tap PM	7.1	11	0.0	67	No
NO7	Consultation Room Tap	7.1	9	0.0	52	No

		AM				
NO8	Consultation	7.0	12	0.0	73	No
	Room Tap					
	PM					

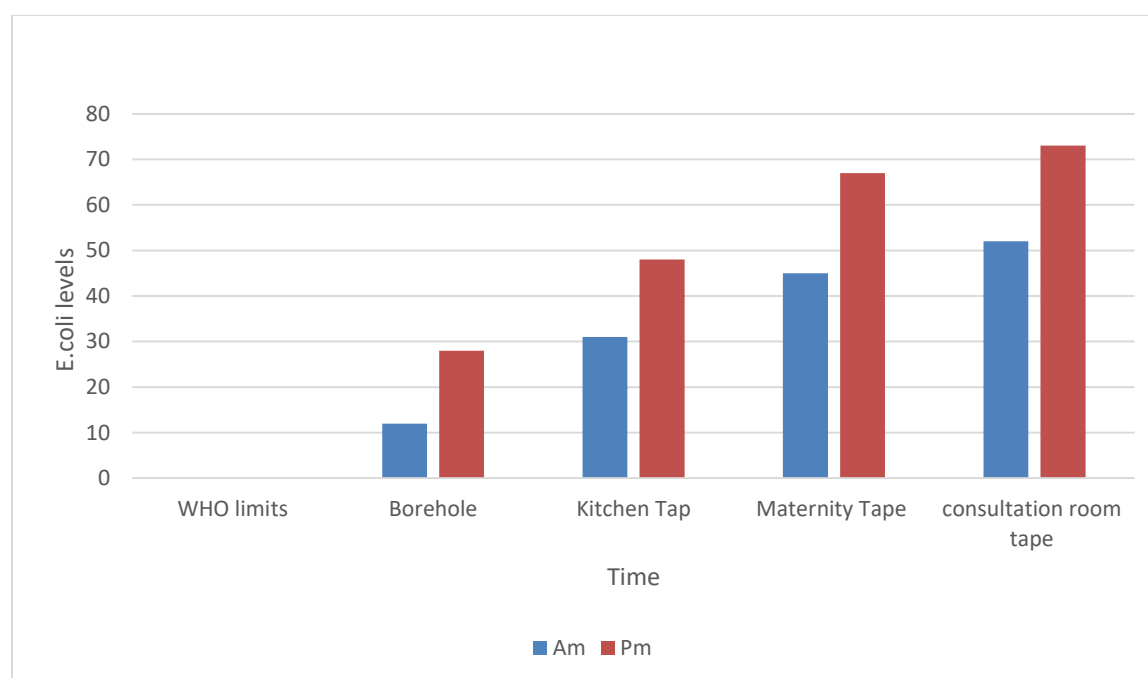


Figure 7: E. coli levels by sampling point and time vs WHO limit 0

4.6 Summary

This chapter presented the findings on water, sanitation and hygiene (WASH) conditions at Nyanyadzi Clinic using questionnaires, observations and water testing. Most participants were female patients aged 30–49 years.

The results showed that water supply at the clinic is not reliable, with water available for only a few hours per day and some taps not working at all. Sanitation facilities were limited, with only half of the toilets functional and no soap available at handwashing points.

Hygiene practices were poor. Few staff washed their hands before patient contact and patients were not observed washing hands after using the toilet. Hygiene materials such as alcohol-based hand rubs were unavailable.

Water quality results were the most concerning, as all samples contained *E. coli* and none met safety standards. Overall, the clinic faces serious WASH challenges that increase the risk of infection and highlight the need for urgent improvements.

CHAPTER 5: DISCUSSION

5. Discussion

5.1 Introduction

This chapter interprets the findings from chapter 4 considering the national and international WASH standards. The results are discussed using the guidance from the World Health Organization and the Ministry of Health and Child Care. They have standards that maintain health care facilities in shape. Comparing the study findings with these standards helps show the seriousness of the gaps identified at Nyanyadzi Clinic and what they mean for patients' safety and quality of care.

5.2 Availability and Reliability of Water Supply

The finding of 3.7 hours per day, “mean” water availability and zero hours at the Consultation Room Tap positions the clinic below the World Health Organization (WHO/UNICEF JMP) requirement for water available on premises at all times (WHO/UNICEF, 2019). This level is worse than the national average for failed rural clinics reported by the Ministry of Health and Child Care (MoHCC) (2024). Morgan et al. (2020) found 67% of clinics in Manicaland had less than 12hrs supply, citing solar pump failure as a key driver. The interviews with the Environmental Health Technician (EHT) confirmed: “The solar pump controller failed three times last month. We wait for DHE to send a technician from Mutare”. This dependency explains the 9 days of non-functionality in March 2026. The complete absence of water at the Consultation Room Tap during the assessment week means infection prevention cannot be observed during consultations. The 80% of staff reporting no water after 1400hrs aligns with Ndlela and Ncube (2021) that solar systems in Zimbabwe have reduced output in late afternoon. The resulting negative pressure causes contaminant entry, as documented by Lee and Schwab (2005), explaining the post-source E. coli

increase in Chapter 4. The situation is more severe than district averages because Nyanyadzi is a maternity center requiring 24hr water per MoHCC (2019) standards.

5.3 Condition and Adequacy of Sanitation Facilities

The 1:52 functional toilet to patient ratio and absence of soap at all handwash stations classifies the service as “Limited Service” (WHO/UNICEF, 2019) and fails the 1:20 standard (WHO, 2022). This ratio is worse than the 1:35 provincial average reported by UNICEF (2023), indicating more hazard. The nonfunctional maternity latrine forces shared use with the other patients. Patient Focus Group Discussion (FGD) participants stated: “We fear using the maternity toilet because it is blocked and dirty. We wait until we go home” (P3, Patient FGD). This risk avoidance matches findings by Cronk and Bartram (2018) that poor maternity sanitation increases infection risk. The total absence of soap matches with MoHCC (2024) findings, showing only 31% of rural Healthcare Facilities had soap available. The Sister in Charge explained: “We last received soap from District Health Office in January. The budget is there but they delay” (KII1). Chideme et al. (2021) identified the same supply chain failure in Masvingo, where 68% of clinics cited Nat Pharm delays for soap stockouts.

5.4 Sanitation Facilities and Standards

The sanitation audit reveals that only two of four toilets were functional and none had soap available. WHO recommends that healthcare facilities should have adequate, functional, clean and accessible toilets separated for staff and patients. All of them should always have handwashing facilities and soap available.

Zimbabwean national guidelines similarly emphasize adequate sanitation ratios and functional handwashing stations. The toilet to patient ratio of 1: 52 observed in this study shows severe pressure on the available facilities and falls short of recommended standards.

Beyond infrastructure, sanitation is also about dignity and safety. missing doors and poor cleanliness can discourage use, especially for women and maternity patients. This creates a hidden risk where patients may avoid using toilets or practice poor hygiene due to discomfort.

5.5 Hygiene Materials and Handwashing Practices

One of the most concerning findings was the low level of hand hygiene. Only 25% of staff were observed washing hands before patient contact and no patients were seen washing hands after using the toilet. Alcohol-based hand rubs were not available at all.

WHO identifies hand hygiene as the single most effective measure to prevent healthcare associated infections. Their standards state that health facilities must always have soap, water and alcohol-based hand rubs available at points of care.

The lack of supplies at Nyanyadzi Clinic suggests that poor compliance is not simply a behavioral issue but a systemic one. When water and hygiene materials are inconsistent, it becomes difficult for staff to maintain good practices even when they understand their importance.

The limited number of hygiene posters also suggests weak health promotion. Visual reminders are important for encouraging both staff and patients to practice hand hygiene regularly.

5.6 Synthesis of WASH Service Levels

The results show the clinic fails _Minimum Standards for Health Care Facilities in Zimbabwe (MoHCC, 2019). The combination of 3.7 hrs./day supply, 0 hrs. at Consultation Room Tap, no

disinfection, 73 CFU/100ml endpoint contamination, broken sanitation, and no soap create multiple transmission pathways, as modelled in WHO WASH FIT (WHO, 2022). Focus Group Discussions (FGDs) confirmed: “Sometimes we use ashes or salt water when there is no soap” (S4, Staff FGD). This cascade is more acute than district averages (MoHCC, 2024). Guo et al. (2017) found only 2% of rural health care facilities in six countries met all four WASH domains.

5.7 Limitations of the study

The study is based on self-reported data from participants. Participants provided their views and opinions which influenced the outcome of study results. The case study design at a single clinic limits statistical generalizability to all rural health facilities in Zimbabwe, although findings are transferable to similar solar borehole facilities in Chimanimani. Data collection occurred over 5 days in April 2026 during the dry season, seasonal variation in water availability and quality was not captured. Microbial testing was limited to *E. coli* and did not include viruses, protozoa or antimicrobial resistance profiles that may be present. Patient handwashing was observed for 30 participants only and social desirability bias may have influenced self-reported practices in questionnaires and FGDs despite triangulation.

5.8 Chapter Summary

This chapter discussed the WASH conditions at Nyanyadzi Clinic against national and international standards. Water supply of 3.7 hrs./day with 0 hours at the Consultation Room Tap was linked to solar pump failure and violates JMP service requirements. The 1:52 toilet ratio and universal absence of soap were explained by infrastructure breakdown and NatPharm procurement delays. Handwashing compliance of 25% was attributed to linked water and soap stockouts rather than knowledge gaps. Water quality failure in 100% of 8 samples, with 73 CFU/100ml at the

endpoint, was linked to source contamination, no chlorination and negative pressure intrusion in an intermittent system.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This case study found that Nyanyadzi Clinic provided water for 3.7 hrs./day with 0 hours at the Consultation Room Tap, all 8 water samples were microbiologically unsafe with counts up to 73 CFU/100ml, had a 1:52 functional toilet-to-patient ratio with no soap at handwash stations and 25% observed staff handwashing compliance. These results classify the facility as a poor facility for water quality and Limited Service for sanitation and hygiene on WHO/UNICEF JMP ladders. The findings demonstrate that current WASH conditions violate Minimum Standards for Health Care Facilities in Zimbabwe (MoHCC, 2019) and compromise infection prevention. The study underscores the need for urgent district and national action to address chlorination, infrastructure repair and supply chain failures.

6.2 Recommendations

- Clinic and District Health Executive: Introduce daily chlorination of the storage tank to achieve 0.2–0.5 mg/L residual chlorine at all taps including the Consultation Room Tap, repair the maternity latrine and Consultation Room Tap within 30 days and establish a monitored soap budget with weekly stock checks to ensure availability of soap at all handwash points.
- Ministry of Health and Child Care: Upgrade the borehole with a higher capacity solar system and automated pump controller to extend supply to about 12 hrs./day, install an automatic inline chlorinator and mandate monthly E coil and chlorine testing by Environmental Health Technicians at all points of use with results displayed publicly on the clinic noticeboard.

- Policy Level: Treasury to create a dedicated Health Care Facility WASH budget line for the 2027 year and Ministry of Health and Child Care to enforce minimum WASH standards by requiring corrective action plans from facilities classified as “No Service” for water quality within 90 days, with non-compliance triggering external technical support.

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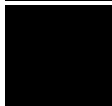
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APPENDICES

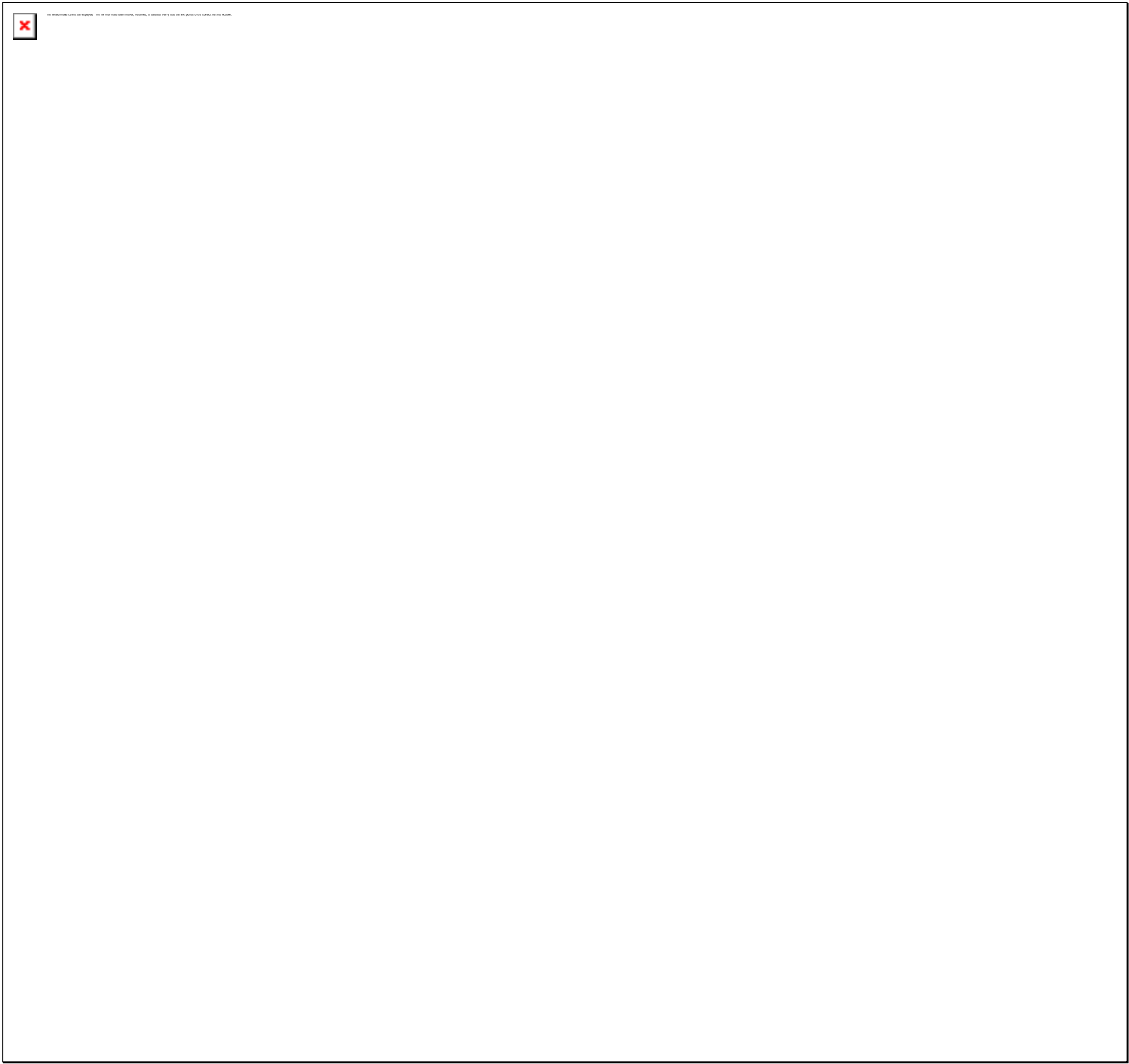
Appendix A: Research Schedule

The following log frame outlines the timeline for the study's phases, detailing key activities and their respective duration.

Phase	Activity	Jan	Feb	Mar	Apr	May
Phase 1: Preparation	- Finalize research instruments					
	- Obtain ethical approval (BUSE)					
	- Conduct preliminary training for research team					
Phase 2: Recruitment	- Collaborate with Nyanyadzi clinic management					
	- Organize information sessions					
	- Obtain informed consent from participants					
Phase 3: Data Collection	- Administer surveys to participants					
	- Conduct interviews and focus groups					

Phase	Activity	Jan	Feb	Mar	Apr	May
Phase 4: Data Analysis	- Analyze quantitative data					
	- Analyze qualitative data					
	- Compile findings and write the final report					
Phase 5: Reporting	- Prepare presentations for stakeholders					
	- Share findings with participants					
	- Share findings with participants and stakeholders at Nyanyadzi clinic					
Phase 6: Dissemination	- Submit final report to BUSE					

Appendix B: Approval letter



Appendix C: Semi-Structured Open-Ended Questionnaire

Questionnaire ID:

QUESTIONNAIRE BINDURA UNIVERSITY OF SCIENCE EDUCATION



P. BAG 1020
Bindura.

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Research title: *Water, sanitation and hygiene challenges at rural health centers
- case of Nyanyadzi, Chimanimani, Zimbabwe*

Introduction

My name is Bindura Loveness, a final 4th year student at Bindura University of Science Education (Reg. B222308B), studying towards obtaining a BSc (Hons) degree in Safety, Health and Environmental Management (SHEM). As part of my curriculum requirement, I am undertaking research entitled “*Water, sanitation and hygiene challenges at rural health centers - case of Nyanyadzi, Chimanimani, Zimbabwe*”. Findings from the study may have implications to policy

10. Frequency of clinic visits (last year) 1. Never 2. 1-2 Times 3. 3+ times

Section B: Sanitation and hygiene practices at the clinic

Choose the most appropriate response: 1. Yes 2. No 3. Not sure

Item	Sanitation and practices at the clinic	Response		
		1	2	3
6	Are handwashing stations with soap available for staff at the clinic?			
7	Are the clinic's waste disposal systems compliant with health regulations?			
8	Are all clinical surfaces disinfected after each patient visit?			
9	Does the clinic have a regular cleaning schedule for equipment and surfaces?			
10	Are personal protective equipment like gloves, masks and head gears provided for staff?			
11	Is water used for cleaning treated or safe for sanitation purposes?			
12	Are sanitation audits performed monthly in the clinic and record keeping?			
13	Do staff receive training on proper sanitation procedures?			
14	Are sharps disposed of in puncture proof containers?			
15	Are the type of toilets used appropriate for the clinic's waste management regulations?			
16	Is there a protocol for managing spills bodily fluids?			
17	Are toilets and washrooms kept clean and functional?			
18	Are staff encouraged to report on unsafe sanitation conditions anonymously?			
19.	Are waste bins labeled and emptied daily?			
20.	Are detergents used for cleaning toilets?			

Section C: water availability and hygiene practices at the clinic

Instruction: *The most appropriate response 1(5 points highest) – 5 (1 point lowest)*

1. *Always* 2. *Often* 3. *Sometimes* 4. *Rarely* 5. *Never*

Item	Water availability and hygiene practices	Response				
		1	2	3	4	5
21.	How often is cleaning drinking water from the main water supply?					
22.	How frequently does the clinic experience interruptions in water from the municipal pipeline during working hours?					
23.	Is there sufficient water from the clinic's hand-washing station reservoirs?					
24.	How often is water quality from the storage tank tested for safety at the clinic?					
25.	Does the clinic have an alternative water source?					
26.	How regular are water tanks cleaned and maintained?					
27.	Is there a backup water supply?					
28.	Are patients informed about water safety of the drinking water source?					
29.	How often do staff report shortages of water from the main supply?					
30.	Is there a system for reporting water related incidents to management?					
31.	Is water available for sterilizing medical equipment throughout the day?					
32.	How regularly are water-related complaints recorded and addressed?					

33.	Does the clinic use rapid water testing equipment for the pharmacy water line?					
34.	Is there a protocol for acting on unsatisfactory water testing results from any source?					
35.	How often does the clinic send water samples from the main supply for external lab testing?					

Appendix D: Observation Checklist

BINDURA UNIVERSITY OF SCIENCE EDUCATION



P. BAG 1020
Bindura,

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Research title: *Water, sanitation and hygiene challenges at rural health centers*

- case of Nyanyadzi, Chimanimani, Zimbabwe

Instruction (*Observer*)

Tick under the appropriate column to record observations

	<i>Water, sanitation and hygiene practices at the clinic</i>	Observed	
		Yes	No
1	Is there reliable water supply in the clinic?		

2	Are handwashing stations functional and accessible?		
3.	Are sanitation facilities like toilets clean and usable?		
4	Are hygiene materials like soap and detergents available?		
5	Do staff receive training on proper sanitation procedures?		
6	Is there a backup water supply?		
7.	How often does the clinic send water samples from the main supply for external lab testing?		
8.	How often do staff report shortages of water from the main supply?		
10	Are waste bins labeled and emptied daily?		
11	Are personal protective equipment like gloves, masks and head gears provided for staff?		
12	Are sanitation audits performed monthly in the clinic and record keeping?		
13	Does the clinic have an alternative water source?		
14	Does the clinic have a regular cleaning schedule for equipment and surfaces?		
15	Is there a protocol for acting on unsatisfactory water testing results from any source?		

Appendix E: Focus Group Discussion Guide

BINDURA UNIVERSITY OF SCIENCE EDUCATION



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Research title: *Water, sanitation and hygiene challenges at rural health centers*

- case of Nyanyadzi, Chimanimani, Zimbabwe

Project site:

Name of facilitator:

Date:

Participants:

Introduction [8 min]

Start time:

- Welcome and introduction (Facilitator, All)
- Purpose of the study and ethical issues (Facilitator)

- Establishing ground rules and pseudo names on cards (placed in front of each participant)

Main discussion question [20 mins] (Audio recording starts here)

- What wash procedures do you follow at the clinic and what challenges make it difficult to follow them?

Probing questions may include:

- Walk me through what happens on a day when there is no water at the clinic. What time does it stop, which services are affected first and what do you do as a result?
- Tell me about the last time you used a toilet at the clinic. Was it functional, clean and private? If not, what did you do instead and why?
- Describe the last time you needed to wash hands here but could not. Was it due to no water, no soap or something else? What did you do instead?
- Do you drink water from clinic taps? If yes, how safe do you think it is and why? If no, what makes you avoid it and where do you get drinking water?

Summary [5 mins]

- Facilitator highlights key discussion points

Vote of thanks [1 min] *Facilitator*

END TIME:

Appendix F: Key Informant Interview Guide

BINDURA UNIVERSITY OF SCIENCE EDUCATION



P. BAG 1020
Bindura,
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Research title: *Water, sanitation and hygiene challenges at rural health centres
- case of Nyanyadzi, Chimanimani, Zimbabwe*

Guide

Introduction (5 mins)

- Participant information
- Purpose of the study
- Recording consent

Main interview questions

1. Water Supply Availability and Reliability (8 mins)

- Can you describe the current water supply system at Nyanyadzi Clinic?
- How many hours per day is water normally available? Has this changed in the last 6 months?
- In the past month, how many times did the clinic have no water? What were the main causes?
- What happens to clinical services, especially maternity, when there is no water?

Probing: Source, storage capacity, distribution, who maintains it? Solar pump failure, dry season, pipe bursts, maintenance delays? Are deliveries referred? Procedures postponed? How does infection control manage?

2. Sanitation Facilities (8 mins)

- Tell me about the toilet facilities for patients and staff?
- What are the main challenges with sanitation facilities at this clinic?
- Is there a specific toilet for maternity patients? What is its condition?

Probing: How many are there? How many are functional? What type? Who cleans them?

Blockages, no water for flushing, lack of privacy, maintenance, budget?

3. Hygiene Materials and Practices (8 mins)

How is soap and alcohol handrub supplied to this clinic?

From your observation, how compliant are staff with handwashing? What are the barriers?

Are there any hand hygiene promotion activities or posters at the clinic?

Probing: Who orders? How often? Is there a budget? What happens during stockouts? Knowledge, time, supplies, water availability?

Are there any hand hygiene promotion activities or posters at the clinic?

4. Water Quality and Treatment (8 mins)

- Is water treated before use at the clinic? If yes, how?
- How often is water quality tested? By whom? What are the usual results?
- What happens when water quality tests fail?

Probing: Chlorination, boiling, filtration? Who is responsible? How often? EHT tests? MoHCC surveillance? Last test date? Results shared?

5. Institutional and Policy Issues (8 mins)

- What WASH budget does the clinic receive from DHE/MoHCC? Is it adequate?
- What are the main institutional barriers to improving WASH at Nyanyadzi Clinic?
- Has WASH FIT or has any WASH improvement programme been implemented here?
- In your opinion, what are the top three priority actions needed to fix WASH at this clinic?

Probing: Funding, staffing, procurement, community support, supervision? Training, assessments, action plans? Short-term vs long-term? What can DHE do? What is the national level?

Summary and Vote of thanks (5 mins)

Total estimated time: 45-60 minutes per interview

