ASSESSMENT OF GENDER AND SOCIAL INCLUSION IN WATER, SANITATION, AND HYGIENE (WASH) ACTIVITIES IN EDO STATE.

BY

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CERTIFICATION

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DEDICATION

I dedicate this work to God Almighty, my lovely wife, Mrs. Ngozi Eseigbe, my beautiful children, King David, Aaron, and Zion, as well as my legendary parents, Mr. Rufus and Mrs. Agnes Eseigbe.

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ABSTRACT

Access to water, sanitation, and hygiene (WASH) is fundamental to public health, gender equity, and sustainable development and is central to achieving the Sustainable Development Goals (SDGs), particularly SDG 6 and SDG 5. Despite sustained investments in Nigeria, persistent gender and social inclusion gaps continue to disproportionately affect women, persons with disabilities (PWDs), and other vulnerable groups. This study assessed gender and social inclusion in WASH service delivery in selected communities in Edo State, Nigeria, by evaluating access levels and determinants of equitable access.

A descriptive cross-sectional mixed-methods design was employed. Data were collected from 371 household respondents across 12 communities using structured questionnaires, Focus Group Discussions, and Key Informant Interviews. Quantitative data were analysed using descriptive statistics and logistic regression, while qualitative data were analysed thematically, with WASH access assessed using a composite scoring system based on WHO/UNICEF Joint Monitoring Programme standards.

Results showed universal access to basic water sources, but weak sanitation and hygiene: over 85% of facilities were basic or limited, and only 30% of households had functional handwashing facilities with water and soap. Fewer than 10% of communities had PWD-accessible facilities, and women's participation was similarly low. Disability status, education level, and residence were significant determinants of equitable access (OR = 6.07; $p = 0.025$). The study concludes that strengthening gender-responsive planning, disability-sensitive infrastructure, and community participation is essential for equitable and sustainable WASH outcomes.

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ACRONYMS

CI – Confidence Interval
EDSG – Edo State Government
EDSPHCDA – Edo State Primary Health Care Development Agency
FGD – Focus Group Discussion
FMOH – Federal Ministry of Health
GSI – Gender and Social Inclusion
IKIs – In-Depth Key Informant Interviews
JMP – Joint Monitoring Programme
KII – Key Informant Interview
LGA – Local Government Area
MICS – Multiple Indicator Cluster Survey
NGO – Non-Governmental Organisation
NSHP – National Strategic Health Plan
PHC – Primary Health Care
PHCUOR – Primary Health Care Under One Roof
PPP – Public–Private Partnership
PWD – Persons with Disabilities
SDG – Sustainable Development Goal
SPESSE – Sustainable Procurement, Environmental and Social Standards Enhancement
SSA – Sub-Saharan Africa
STRUWASSA – Small Town and Rural Water Supply and Sanitation Agency
UNDP – United Nations Development Programme
UNICEF – United Nations Children's Fund
USAID – United States Agency for International Development
WASH – Water, Sanitation and Hygiene
WHO – World Health Organization
WHO/UNICEF JMP – World Health Organization / United Nations Children's Fund Joint Monitoring Programme

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Access to clean water, proper sanitation, and good hygiene, collectively known as WASH is fundamental to human dignity, health, and sustainable development (WHO, 2017). Safe drinking water and adequate sanitation are crucial for preventing disease, reducing health inequalities, and improving overall well-being. Recognized globally as basic human rights, WASH services are central to achieving the Sustainable Development Goals (SDGs), especially SDG 6 (clean water and sanitation for all) and SDG 5 (gender equality) (United Nations, 2015).

Despite this global commitment, billions of people still struggle to access these essential services, resulting in severe health, social, and economic consequences (WHO and UNICEF, 2021). These global figures reflect deeper systemic issues that cascade down to regional and national levels.

Globally, access to safe water and sanitation remains deeply unequal. An estimated 2.2 billion people lack access to safe drinking water, while over 3.6 billion people do not have basic sanitation services (WHO and UNICEF, 2021). Vulnerable groups, particularly women, children, and marginalized communities, are disproportionately affected (JMP, 2021). Even in urban areas, which are often considered hubs of development, inequalities persist (UN-Habitat, 2020). Many informal settlements and slums suffer from overcrowding, poor infrastructure, and social exclusion, leaving residents without reliable WASH services (Corburn and Sverdlik, 2017). Rapid urbanization has only widened these gaps, further deepening the disadvantage for women and marginalized populations (Satterthwaite *et al.*, 2020).

In Sub-Saharan Africa, the WASH crisis is even more pronounced. The region experiences some of the world's highest rates of diseases linked to poor water and sanitation, such as diarrhoea and cholera (Prüss-Ustün *et al*., 2019). Despite on-going efforts to expand access, more than 400 million people in the region still live without basic drinking water, and millions more lack adequate sanitation and hygiene facilities (World Bank, 2020; UNICEF, 2020). For women and girls, the impact is especially severe, as many spend hours each day fetching water, time that could otherwise be used for education, economic activities, or rest (UN Women, 2020; Sorenson *et al*., 2011). Women often play a central role in managing water within households and communities (O'Reilly and Dreibelbis, 2018; Graham *et al*., 2016). Beyond this responsibility, they also have unique needs when it comes to WASH services, whether it's access to clean water and sanitation during menstruation, pregnancy, or menopause, or ensuring safe facilities while caring for children and family members. These factors can make women more vulnerable to WASH-related challenges, highlighting the need for inclusive and responsive solutions that address their specific concerns. Gender disparities in WASH access exacerbate social and economic inequalities (Kayser *et al*., 2019).

Nigeria reflects these broader regional challenges. Both rural and urban communities experience significant WASH deficits, though in different ways (National Bureau of Statistics, 2019). In rural areas, the basic infrastructure is often non-existent, while in urban slums, resource inequalities and overcrowding persist (Adeleye and Akinola, 2020). Approximately 60 million Nigerians live without access to clean water, and over 123 million lack improved sanitation facilities (UNICEF, 2021). Women, children, and persons with disabilities are particularly vulnerable, facing increased health risks and limited opportunities for education and economic advancement (Federal Ministry of Water Resources, 2019; Akpabio, 2012).

Although Nigeria's National WASH Action Plan represents a positive policy step (Federal Ministry of Water Resources, 2019), implementation remains constrained by funding shortfalls and a lack of gender-sensitive approaches (Oloruntoba and Oyebode, 2022). In Edo State, these national challenges are acutely evident. The state's blend of urban and rural communities encounters multiple obstacles, from dilapidated infrastructure in rural regions to overcrowding and resource inequities in urban centres (Omole *et al*., 2021). Marginalized groups, including women and persons with disabilities, are often excluded from decision-making processes that shape WASH service delivery (Nnaji and Mama, 2022). Addressing these issues requires a deeper understanding of the existing barriers and enablers of inclusion in WASH programming.

1.2 Statement of the Problem

Despite global efforts to improve WASH services, major gaps remain, especially regarding inclusivity and equity (WHO and UNICEF, 2021). Globally, billions still lack safe drinking water and sanitation, and the consequences fall most heavily on women and marginalized communities (Mason *et al*., 2020). Factors such as rapid urbanization, climate change, and entrenched social inequalities further complicate these challenges (UN-Habitat, 2020; Bartram and Cairncross, 2010).

In informal urban settlements, overcrowding, poor infrastructure, and social exclusion are everyday realities (Corburn and Sverdlik, 2017). Women and girls are disproportionately affected, often facing unsafe environments and limited access to education and income-generating opportunities (Sommer *et al*., 2015; WHO, 2017).

In Sub-Saharan Africa, these issues are amplified. The region continues to bear a heavy burden of WASH-related diseases, which perpetuate cycles of poverty and inequality (Prüss-Ustün *et al*., 2019; World Bank, 2020). Systemic barriers including harmful cultural norms, insufficient funding for infrastructure, and limited political will impede progress (Kayser *et*

al., 2019; UN Women, 2020). Women and other marginalized groups, whether in rural communities or urban slums are left to shoulder the burden, walking long distances for water or navigating unsafe, unhygienic environments (Sorenson *et al*., 2011; Asaba *et al*., 2013).

Nigeria, despite its national-level commitments, continues to face serious WASH challenges (National Bureau of Statistics, 2019; Adeoti *et al*., 2019). Rural areas often lack basic services, while urban centres reveal stark disparities in access (Adeleye and Akinola, 2020). Informal settlements in cities are frequently neglected, leaving millions without reliable water and sanitation (Omole *et al*., 2021). Moreover, the voices of women, children, and persons with disabilities are frequently excluded from key decision-making spaces, resulting in services that do not reflect their specific needs (Akpabio, 2012; Oloruntoba and Oyebode, 2022).

In Edo State, these challenges are mirrored. Rural areas contend with poor or non-existent water and sanitation infrastructure, while underserved urban communities face overcrowding and inadequate WASH services (Nnaji and Mama, 2022). Women, who are typically responsible for managing household water and sanitation, face additional risks, including exposure to unsafe environments and systemic exclusion from leadership roles (Sommer *et al*., 2015). Persons with disabilities and ethnic minorities also encounter barriers that prevent them from fully benefiting from WASH services (Asaba *et al*., 2013).

Despite numerous interventions, there is a lack of evidence-based research on the extent of gender and social inclusion in WASH activities in Edo State (Omole *et al*., 2021). Without this data, developing effective and sustainable solutions is difficult. Addressing these gaps is not just about enhancing WASH services; it is about ensuring health, dignity, and inclusive development for all (Bartram and Cairncross, 2010).

1.3 Aim and Objectives

The aim of this study is to examine the level of gender and social inclusion in WASH activities in Edo State, shedding light on representation, participation, and barriers to inclusivity, and supporting more equitable and sustainable development.

The objectives are to;

1. assess the current state of WASH access in selected communities in Edo State.
2. examine the extent to which gender and social inclusion considerations are integrated into existing WASH interventions.
3. identify the key factors that influence equitable access to WASH services for both gender and socially marginalized groups.
4. propose actionable strategies for enhancing gender-responsive and socially inclusive WASH policies and programmes in Edo State.

1.4 Justification of the Study

This study is not just timely; it is vital. Inequities in WASH access are deeply rooted in both rural and urban communities in Edo State, with wide-ranging effects on health, education, and socioeconomic development (Akpabio, 2012; Omole *et al*., 2021). WASH is not merely a public health concern; it is a foundation for gender equity, empowerment, and sustainable progress (UN Women, 2020; Mason *et al*., 2020).

Vulnerable groups, particularly women, children, persons with disabilities, and ethnic minorities, continue to face disproportionate consequences due to inadequate WASH services (Asaba *et al*., 2013; Sommer *et al*., 2015). This study will highlight gaps in current WASH governance and programme implementation in Edo State (Adeoti *et al*., 2019;Nnaji and Mama, 2022).

In many urban areas, informal settlements lack basic infrastructure, compounding the burden on women who must manage household water and sanitation under unsafe and stressful

conditions (Corburn and Sverdlik, 2017). The absence of gender-sensitive facilities and inclusive planning further worsens their vulnerability (Oloruntoba and Oyebode, 2022).

By focusing on gender and social inclusion, this study will address a crucial yet underexplored dimension of WASH services in Edo State (Omole *et al*., 2021; Nnaji and Mama, 2022). It aims to reveal systemic barriers and identify enablers that affect access, representation, and participation in WASH programmes (Kayser *et al*., 2019).

For policymakers, civil society organizations, and development practitioners, the findings will offer clear, actionable recommendations (UNICEF, 2021). Beyond academic contribution, this study aspires to deliver real-world impact: reducing health disparities, empowering marginalized populations, and fostering community ownership of WASH initiatives (Bartram and Cairncross, 2010).

Ultimately, this study will fill a critical knowledge gap and offer a strategic roadmap for advancing gender equity and social inclusion in WASH programming in Edo State and beyond (World Bank, 2020).

CHAPTER TWO

LITERATURE REVIEW

2.1 Assessing WASH access across communities.

Access to water, sanitation, and hygiene (WASH) is a foundational determinant of public health, socio-economic development, and human well-being. Globally, WASH access is recognized as a human right, integral to achieving the Sustainable Development Goals (SDGs), including SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 5 (Gender Equality), and SDG 6 (Clean Water and Sanitation) (WHO/UNICEF, 2021). Adequate WASH services reduce the prevalence of waterborne diseases, improve nutritional outcomes, support educational attainment, and promote gender equity. Despite global progress, disparities remain pronounced across geographic, socio-economic, and demographic lines, with rural, poor, and marginalized populations often bearing the greatest burden.

National surveys in Nigeria reveal persistent inequities. Oluyomi *et al.* (2020) reported that rural populations were three times more likely to lack access to basic water services than urban populations. Even within urban centers, informal settlements frequently experience limited service coverage due to population density, poor infrastructure, and governance gaps, disproportionately affecting women, children, and the elderly (Adah *et al*., 2019). Seasonal variability further exacerbates reliance on unimproved water sources, including rivers, shallow wells, and unprotected hand-dug wells, contributing to outbreaks of diarrheal diseases and cholera during dry periods.

Sub-national studies provide further insight. In Edo State, Ezeh *et al*. (2021) found that only 38% of rural households had access to improved drinking water sources compared with 68%

in urban areas. Sanitation coverage is similarly inadequate; Ibhawoh and Enabulele (2020) observed that over 45% of semi-urban households practiced open defecation due to non-functional public toilets. Only 30% of households had functional handwashing stations with soap, highlighting the gaps in hygiene promotion despite national campaigns. These findings indicate that WASH infrastructure deployment remains uneven, both across and within communities, and that coverage alone is insufficient to ensure safe and sustainable WASH outcomes.

Environmental, geographic, and infrastructural factors compound these challenges. Rural areas often lack piped water networks, relying on rainwater harvesting, surface water, or shallow wells, which are vulnerable to contamination and seasonal depletion (Fobil & Asare, 2023). Urban informal settlements, though near centralized infrastructure, experience intermittent supply, inadequate drainage, and overcrowding, resulting in contamination and heightened exposure to waterborne diseases. Schools and healthcare facilities, essential for education and public health, are frequently under-equipped with limited water and sanitation facilities, which undermines safe hygiene practices and disproportionately affects women and children (Howard *et al*., 2022).

From a theoretical perspective, the Human Rights-Based Approach (HRBA) frames WASH as a legally enforceable right, emphasizing that services must be available, accessible, affordable, acceptable, and of adequate quality (de Albuquerque, 2014). Intersectionality theory highlights how overlapping social identities—gender, disability, socio-economic status, and age—compound disadvantages in WASH access (Crenshaw, 1991). The social determinants of health framework further elucidates the role of environmental, socio-economic, and educational factors in shaping WASH accessibility and health outcomes (Solar & Irwin, 2010).

Methodologically, assessing WASH access requires mixed-method approaches, combining quantitative surveys, facility audits, and qualitative tools such as focus group discussions and key informant interviews. Quantitative data capture coverage, functionality, and reliability, while qualitative insights reveal perceptions, cultural practices, and user satisfaction. Participatory mapping and community-based monitoring enhance understanding of spatial inequities and local priorities (Cornwall & Gaventa, 2020). Longitudinal studies are particularly useful for tracking seasonal and temporal changes in service access and sustainability.

Technological innovations play an increasingly critical role. Solar-powered water pumps, boreholes with mechanized systems, rainwater harvesting, and smart meters have improved service reliability and coverage in comparable African contexts (Fobil & Asare, 2023). However, without strong community engagement, routine maintenance, and local capacity, such infrastructure often deteriorates rapidly, reducing long-term effectiveness.

The public health implications are significant. Inadequate WASH contributes to diarrheal diseases, cholera, typhoid, and under nutrition, especially among children and vulnerable groups. Repeated infections compromise nutrient absorption and child development, while inadequate sanitation and hygiene increase maternal and neonatal morbidity. Addressing WASH access gaps is thus not solely an infrastructure challenge but a strategic public health priority, directly linked to reducing disease burden and promoting equity across populations.

2.2 Gender and social inclusion considerations in existing WASH interventions

Gender and social inclusion (GSI) considerations are increasingly recognized as critical components of effective WASH interventions, given their direct influence on health, dignity, and equitable development. Access to WASH services is not uniform, and inequities often

disproportionately affect women, girls, persons with disabilities (PWDs), the elderly, and other marginalized populations (UNICEF, 2021). The integration of GSI into WASH programs ensures that these vulnerable groups can exercise their rights to health, education, and well-being. Failure to integrate these considerations can perpetuate existing inequalities, undermine public health efforts, and limit the social and economic impact of WASH programs.

Globally, WASH programs have historically adopted a gender-neutral approach, focusing on physical infrastructure and coverage without considering the differentiated needs of populations (Bain *et al*., 2019). Women and girls, who frequently bear the primary responsibility for water collection, sanitation management, and household hygiene, often face challenges related to privacy, menstrual hygiene management (MHM), and safety. Inadequate attention to these needs can contribute to school absenteeism, particularly among adolescent girls, and reduce women's participation in income-generating activities (Miiro *et al.*, 2018). In Sub-Saharan Africa, studies reveal that girls in schools without private sanitation facilities are significantly more likely to miss classes during menstruation, reinforcing gender inequities in education. In addition, women often lack representation in community-level WASH decision-making bodies, limiting their ability to influence service delivery, maintenance, and hygiene promotion.

Persons with disabilities face compounded challenges. Physical barriers, including the absence of ramps, handrails, wide entrances, and accessible latrines, are widespread. Abdu *et al.* (2021) note that many public WASH facilities in Nigeria fail to meet even minimum accessibility standards, while attitudinal barriers, such as stigmatization by service providers or household members, further restrict access. In Edo State, Ezeani *et al*. (2020) observed that the majority of public sanitation facilities were non-wheelchair-friendly, with limited

awareness of PWD needs among policymakers, engineers, and community leaders. Informal settlements exacerbate these challenges due to crowded layouts, poor infrastructure, and limited oversight.

At regional and national levels, several policies advocate for GSI in WASH programs. Nigeria's National WASH Policy (2016) and the Clean Nigeria Campaign (2019) emphasize the need for gender-sensitive and disability-inclusive service delivery. Despite these policies, operationalization remains inconsistent. Uche and Onah (2020) reported that less than 30% of WASH projects in southern Nigeria involved gender-sensitive consultations at design stages. In Edo State, Osagie *et al*. (2022) found that women's participation in WASH governance structures remained marginal, and PWDs had minimal input in planning, implementation, or feedback mechanisms. While donor-led programs often prioritize participatory planning and accountability, these initiatives sometimes still neglect intersectional vulnerabilities, including the compounding effects of gender, age, disability, and socio-economic disadvantage.

Cultural, social, and institutional norms significantly shape GSI integration. Patriarchal attitudes often relegate water and sanitation management to women while excluding them from leadership roles, reinforcing gender hierarchies (Ajibade *et al.*, 2019). In Edo communities, some social norms position public sanitation and water management as male-dominated spheres, discouraging female leadership. Similarly, societal perceptions of disability, including assumptions about dependency or incapacity, further limit the participation of PWDs in WASH planning and decision-making. Addressing these barriers requires both behavioural change strategies and structural reforms that enable participation and empowerment of marginalized groups.

From a theoretical standpoint, integrating GSI into WASH programming benefits from intersectionality theory, the Human Rights-Based Approach (HRBA), and social determinants of health frameworks. Intersectionality emphasizes the compounded disadvantages faced by individuals whose identities span gender, disability, socio-economic status, and age, and the way these intersecting identities shape access and outcomes (Crenshaw, 1991). HRBA frames WASH as a legal and ethical right, underscoring obligations to provide universal, non-discriminatory access while embedding accountability in policy and program design (de Albuquerque, 2014). The social determinants of health framework situates WASH within the broader context of living conditions, income, education, and environmental exposures, highlighting that inequities in access reflect systemic socio-economic disparities (Solar & Irwin, 2010).

Methodologically, evaluating GSI integration requires multi-level, mixed-method approaches. Disaggregated household surveys capture differential access and use by gender, disability, and age. Facility audits assess infrastructure adequacy, functionality, and accessibility, while qualitative tools—including focus group discussions, participatory mapping, and key informant interviews—reveal user experiences, perceptions, and unmet needs. Longitudinal studies provide insights into seasonal or temporal variations, while geo-spatial mapping identifies pockets of exclusion. Participatory monitoring approaches further allow communities, especially marginalized groups, to hold programs accountable for inclusion and equity (Cornwall & Gaventa, 2020).

Evidence shows that integrating GSI into WASH programming produces significant benefits. Inclusive programs enhance health outcomes by reducing exposure to waterborne disease, diarrheal illnesses, and hygiene-related infections, particularly for women, children, and PWDs (WHO & UN Women, 2020). Improved access to private, safe, and hygienic

sanitation facilities reduces the risk of gender-based violence and promotes dignity. MHM-friendly facilities in schools increase girls' attendance and educational achievement, with long-term socio-economic benefits. Programs that meaningfully engage women and marginalized groups in governance and maintenance increase sustainability, as local stakeholders are more likely to support infrastructure upkeep and hygiene promotion activities.

Despite progress, gaps remain. Many programs prioritize quantitative outputs—such as latrine counts or water points installed—over qualitative aspects like usability, safety, dignity, or cultural acceptability. Moreover, most initiatives lack robust monitoring of inclusion metrics, limiting evidence on program impact for marginalized groups. The persistence of inequities highlights the need for policies, programs, and funding mechanisms that explicitly target intersectional vulnerabilities, strengthen participatory governance, and integrate GSI at every stage of WASH planning, implementation, and evaluation.

2.3 Factors influencing equitable access to WASH services for women, persons with disabilities, and marginalized groups

Access to WASH services is shaped by a complex interplay of socio-economic, cultural, political, environmental, and infrastructural factors. Understanding these determinants is critical for designing interventions that are equitable, sustainable, and responsive to the needs of marginalized populations, including women, girls, persons with disabilities (PWDs), the elderly, and the socio-economically disadvantaged. Inequitable access not only exacerbates vulnerability to waterborne diseases and hygiene-related illnesses but also reinforces broader social inequalities, limiting educational attainment, livelihood opportunities, and community participation (Sommer *et al*., 2020).

Socio-economic factors are among the most significant determinants of equitable WASH access. Household income, wealth status, and employment influence the ability to afford improved water services, sanitation facilities, and hygiene products. Ajibade *et al.* (2019) observed that in Nigeria, women in low-income households often lack control over household expenditures, which reduces their ability to prioritize WASH needs. Limited financial resources result in reliance on unimproved water sources, shared or public latrines, and reduced hygiene practices, particularly in informal urban settlements and remote rural communities. Similarly, education level affects WASH access and utilization. Educated household heads are more likely to understand the health benefits of improved water and sanitation and to invest in hygiene-promoting behaviors (Jiménez *et al*., 2020).

Cultural norms and gender dynamics further shape WASH access. In many Nigerian communities, including Edo State, social expectations position water collection, sanitation maintenance, and hygiene responsibilities primarily on women and girls, while men retain authority over household decision-making (Ajibade *et al*., 2019). This imbalance limits women's influence in prioritizing WASH investments and decision-making at both household and community levels. Cultural taboos and privacy concerns also influence the location and type of sanitation facilities women are willing to use, with poorly designed or unsafe latrines discouraging usage. Moreover, religious beliefs and social hierarchies can create additional barriers to women's participation in WASH governance, further perpetuating inequities.

Disability-related factors represent another critical axis of exclusion. Olorunfemi *et al*. (2021) reported that PWDs frequently encounter both physical and attitudinal barriers. Physically, latrines, water points, and hygiene stations are often inaccessible due to the lack of ramps, handrails, or space for mobility aids. Attitudinal barriers include stigmatization and low awareness among service providers, policymakers, and community members, resulting in

exclusion from planning, decision-making, and feedback mechanisms. In Edo State, field observations by Ezeani *et al.* (2020) indicate that public latrines, schools, and health facilities rarely comply with basic accessibility standards, rendering them unsuitable for PWDs and limiting their independence, safety, and dignity.

Environmental and geographic factors also influence WASH access. Rural communities often rely on unimproved sources such as rivers, ponds, and shallow wells, which are vulnerable to seasonal scarcity, contamination, and climate variability (Fobil & Asare, 2023). Urban informal settlements, while geographically closer to centralized infrastructure, experience challenges related to overcrowding, poor drainage, intermittent water supply, and vulnerability to floods or pollution. Seasonal fluctuations in water availability force households to adapt by using multiple sources of varying quality, which increases exposure to pathogens. These environmental determinants intersect with socio-economic and cultural factors, disproportionately affecting marginalized groups.

Political, institutional, and governance factors further shape access. Policy design, implementation, and monitoring often fail to adequately incorporate equity considerations. Oluwasola *et al*. (2021) found that national WASH programs in Nigeria lacked effective mechanisms for tracking gender and disability inclusion. Monitoring systems frequently omit disaggregated data, making it difficult to identify disparities or enforce accountability. Similarly, budget allocation processes often prioritize coverage targets—such as the number of boreholes or latrines constructed—over inclusive outcomes, leaving marginalized populations underserved (Babayemi & Dauda, 2020). Donor-driven initiatives sometimes demonstrate greater responsiveness to equity due to participatory design and external accountability frameworks; however, even these programs often focus on quantitative outputs at the expense of qualitative factors such as safety, accessibility, and cultural acceptability.

Socio-political dynamics and community governance significantly influence WASH equity. In some communities, leadership structures and decision-making processes are male-dominated, reducing opportunities for women and PWDs to influence planning and resource allocation (Cornwall & Gaventa, 2020). Social norms that assign public sanitation as a male responsibility or stigmatize disability further hinder equitable participation. Participation in community water committees, sanitation groups, or hygiene promotion programs often excludes marginalized voices, limiting sustainability and local ownership of WASH infrastructure. Where participatory governance is weak, maintenance of facilities declines, reducing service reliability and discouraging consistent use.

Intersectionality provides a critical lens for understanding these overlapping determinants. Individuals experience multiple, compounding disadvantages based on the convergence of gender, disability, age, socio-economic status, ethnicity, and geographic location (Crenshaw, 1991). For example, a rural woman with a physical disability faces not only limited household decision-making power and social stigma but also physical barriers to accessing water points or latrines, increasing vulnerability to disease, social exclusion, and educational or economic marginalization.

The public health consequences of inequitable WASH access are severe. Limited access to clean water, functional sanitation, and hygiene facilities increases the risk of diarrheal diseases, cholera, typhoid, under nutrition, and other preventable illnesses (WHO, 2021). Women and girls are particularly affected by unsafe sanitation due to risks of gender-based violence and exposure to infections. Children with limited hygiene education and inadequate sanitation in schools face interruptions in learning, contributing to broader social and economic inequalities. For PWDs, exclusion from WASH facilities increases dependence on caregivers, reduces autonomy, and elevates the risk of infection and injury.

Policy and programmatic responses highlight both progress and gaps. Nigeria has developed a range of policies, including the National WASH Policy (2016), the Open Defecation Free (ODF) Roadmap (2018), and various state-level WASH initiatives, emphasizing the importance of equitable access. However, translation into practice remains limited. In Edo State, Okungbowa *et al.* (2021) noted that donor-driven programs outperformed government initiatives in promoting inclusivity due to stronger participatory frameworks and external accountability, yet even these often prioritized quantitative infrastructure targets over qualitative inclusion outcomes. Insufficient attention to intersectional vulnerabilities and weak monitoring mechanisms have perpetuated inequities for women, PWDs, and marginalized groups.

Equitable access to WASH services is influenced by a complex interplay of socio-economic, cultural, political, environmental, and institutional factors, with intersectionality compounding the disadvantages faced by women, PWDs, and marginalized groups. Addressing these multifaceted barriers requires comprehensive approaches that integrate technical infrastructure, participatory governance, behavioural change, policy enforcement, and monitoring systems disaggregated by gender, disability, and socio-economic status. Without these integrated measures, WASH interventions risk reinforcing existing inequities and failing to achieve sustainable public health, educational, and social outcomes.

2.4 Proposing actionable strategies for enhancing gender-responsive and socially inclusive WASH policies and programmes.

Addressing the persistent gaps in gender and social inclusion (GSI) within WASH programming requires a multidimensional approach that integrates infrastructure development, participatory governance, capacity building, behavioural change, and policy enforcement. Effective strategies must recognize that WASH access is not merely a technical

or infrastructural challenge but a social, political, and public health imperative. This section explores actionable strategies that can enhance gender-responsive and socially inclusive WASH interventions, drawing on global best practices, national policy frameworks, and context-specific evidence from Edo State and similar settings.

Institutionalizing participatory governance and community engagement is a foundational strategy for ensuring equitable WASH access. Participation must move beyond token representation to genuine empowerment of women, PWDs, and marginalized groups. Cornwall and Gaventa (2020) emphasize that meaningful participation leads to better project design, higher levels of community ownership, and improved sustainability of infrastructure. In practice, this involves creating inclusive water committees, sanitation task forces, and hygiene promotion teams that actively involve representatives of women's groups, disability organizations, youth associations, and other marginalized populations. Participatory approaches should include joint decision-making in the selection of facility locations, design features, maintenance schedules, and monitoring systems. In Edo State, pilot initiatives have shown that communities with inclusive governance structures experience higher latrine usage, reduced waterborne disease prevalence, and increased accountability for facility maintenance.

Capacity building for stakeholders is equally critical. Government officials, engineers, community leaders, and service providers must be trained on GSI principles, including gender mainstreaming, disability-inclusive design, and the intersectional vulnerabilities of marginalized populations (Kayser *et al*., 2019). Training programs should integrate technical, social, and behavioural components, equipping stakeholders with skills to conduct accessibility audits, participatory assessments, and inclusive monitoring. In addition, professional development programs for engineers and architects should incorporate universal

design standards, enabling the construction of facilities that accommodate users with diverse physical abilities, ages, and cultural preferences.

Infrastructure design and technological innovations are central to ensuring accessibility and dignity. Facilities should incorporate disability-friendly features, including ramps, handrails, wider entrances, accessible taps, and MHM-supportive spaces such as private changing areas and disposal bins (WaterAid, 2020). Beyond physical access, technology can enhance service quality. For example, automated water pumps with sensors, solar-powered handwashing stations, and mobile reporting platforms allow communities to monitor facility functionality and report maintenance needs in real-time. In urban informal settlements, compact and modular latrine designs can optimize limited space while maintaining hygiene and privacy, particularly for women and girls. Evidence from South Africa and Kenya demonstrates that such innovations increase adoption and consistent use among vulnerable populations.

Behavioural change and hygiene promotion must accompany infrastructure interventions. Educational campaigns should target both men and women, emphasizing shared responsibility for water collection, sanitation management, and hygiene practices. Health education should integrate culturally sensitive messaging, community-led total sanitation (CLTS) principles, and school-based programs that teach children proper hygiene, MHM, and water safety practices. Engaging religious and traditional leaders can reinforce positive behavioural norms and reduce social barriers to women's participation in WASH decision-making. In Edo State, successful hygiene campaigns have combined mass media, community theater, and peer-led education to address misconceptions and promote inclusive practices.

Monitoring, evaluation, and accountability mechanisms are essential for sustaining inclusion outcomes. Programs should incorporate disaggregated indicators for gender, disability, age, and socio-economic status. Quantitative monitoring—such as the number of accessible

latrines constructed, water points functioning, and hygiene facilities maintained—should be complemented by qualitative assessments of user satisfaction, dignity, and safety. Participatory monitoring approaches empower communities to track progress, identify gaps, and hold service providers accountable. For instance, mobile-based reporting systems can enable women and PWDs to document facility issues and request timely repairs, enhancing responsiveness and transparency.

Policy integration and enforcement are critical for institutionalizing inclusive practices. Binding gender and disability targets should be embedded in local and state-level WASH plans, with clearly defined accountability mechanisms for non-compliance. Policies must mandate inclusive design standards, equitable allocation of resources, and active participation of marginalized groups in decision-making bodies. National initiatives such as the Clean Nigeria Campaign and the National WASH Policy provide frameworks for inclusion, but operational guidelines must clarify measurable targets, monitoring protocols, and enforcement responsibilities. In Edo State, aligning local government planning with national inclusion mandates can ensure that infrastructure projects meet the needs of all community members.

Financing mechanisms should also support inclusive WASH outcomes. Budget allocations must earmark resources for accessibility features, community engagement activities, and capacity building for inclusive governance. Public-private partnerships can leverage technical expertise and financial resources to scale innovative solutions. Additionally, microfinance programs or community-based savings schemes can enable marginalized households to access household-level improvements, such as latrines, water storage, and handwashing facilities, fostering local ownership and sustainability.

Cross-sectoral coordination enhances the effectiveness of inclusive WASH interventions. Collaboration between health, education, gender, social development, and disability-focused agencies ensures that programs address multiple dimensions of vulnerability. For example, school-based WASH programs that integrate MHM facilities, disability-accessible toilets, and hygiene education simultaneously improve health outcomes, educational retention, and gender equity. Similarly, health facility WASH improvements contribute to maternal and neonatal health outcomes, particularly when combined with outreach programs targeting women and PWDs.

Theoretical and conceptual frameworks can guide the design and implementation of inclusive strategies. Intersectionality theory highlights the compounding effects of multiple social identities on access to WASH, emphasizing the need for programs that recognize overlapping vulnerabilities (Crenshaw, 1991). The Human Rights-Based Approach (HRBA) frames WASH as a legal and ethical entitlement, reinforcing obligations for governments and service providers to ensure non-discriminatory access (de Albuquerque, 2014). Social determinants of health frameworks contextualize WASH within broader environmental, socio-economic, and institutional conditions, reinforcing the need for integrated, multi-level strategies that address systemic inequities (Solar & Irwin, 2010).

Community-led innovation and adaptive management are essential for long-term sustainability. Encouraging local problem-solving and innovation allows communities to tailor WASH solutions to their specific cultural, environmental, and demographic contexts. Examples include co-designed latrine models that meet women's privacy needs, low-cost ramps for PWDs, and communal water point maintenance committees that rotate responsibilities equitably among households. Adaptive management approaches enable

continuous learning, allowing interventions to respond dynamically to changes in population, climate, or social norms.

Enhancing gender-responsive and socially inclusive WASH policies and programs requires a comprehensive, multi-level approach that integrates participatory governance, capacity building, inclusive infrastructure, behavioural change, monitoring, policy enforcement, financing, cross-sectoral coordination, theoretical guidance, and community innovation. Systematically implementing these strategies can transform WASH service delivery in Edo State, improving public health outcomes, reducing gender and disability inequities, promoting educational attainment, and fostering sustainable community development. Inclusive WASH programming not only addresses immediate health risks but also strengthens resilience, social cohesion, and long-term development trajectories for all community members.

CHAPTER THREE

METHODOLOGY

3.1 Study Area

The study was carried out in Edo State, which is one of the states in the South-south geo-political zone of Nigeria. It was created on the 27th of August, 1991 with Delta State from the defunct Bendel State. It is located in the heart of the tropical rain forest and it lies between longitude 5°E and 6°42"E and latitude 5°45"N and 7°35"N of the equator. It is bounded in the north and east by Kogi State, in the south by Delta State and in the west by Ondo State. The main ethnic groups in the State are Benin, Esan, Etsako, Owan and Akoko-Edo although the state has several other tribes and ethnic groups who reside in it. The projected population of the State as at 2025 is 5,239,244 (based on 2006 census figure of 3,218,332 and a National population growth rate of 2.6%). Edo State is divided into three senatorial zones which are further divided into 18 Local Government Areas.

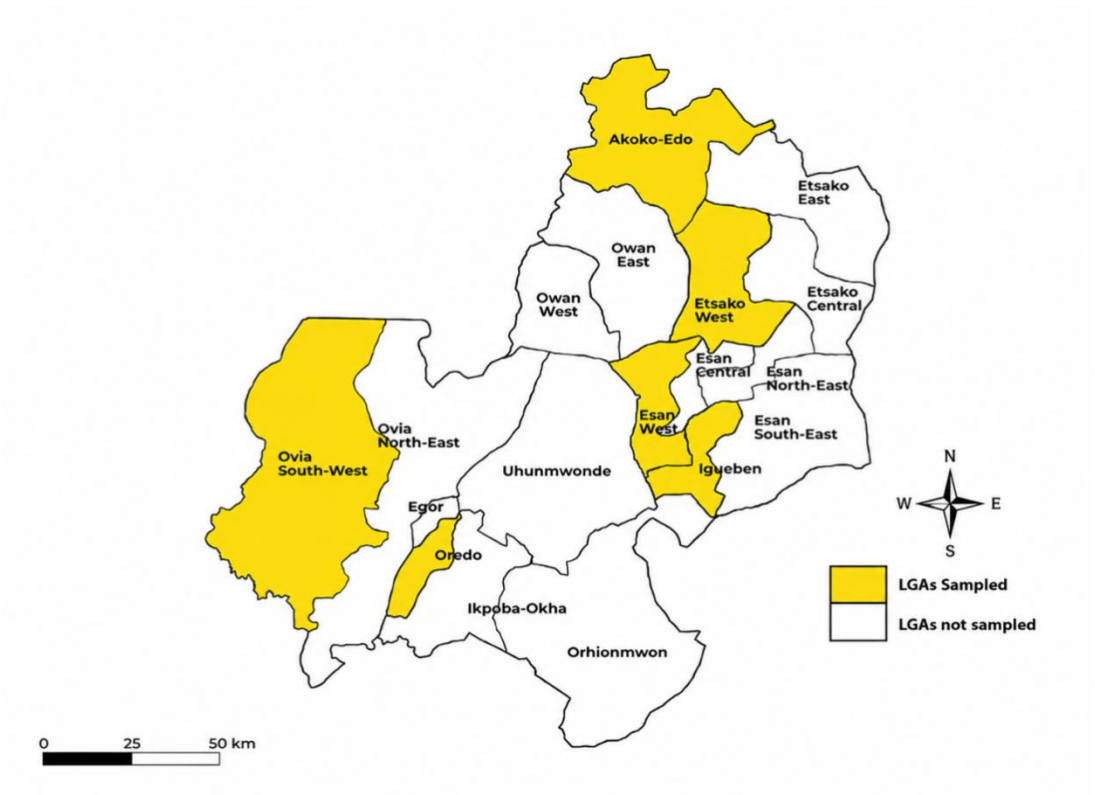

Figure 3.1: Map of study area.

Each zone is characterized by unique cultural, socio-economic, and environmental dynamics that influence access to water, sanitation, and hygiene (WASH) services. The study communities were selected to represent a mixture of urban, peri-urban, and rural settings, allowing a more comprehensive understanding of WASH access disparities and inclusion challenges across the state.

3.2 Study Design

A cross-sectional descriptive study design was adopted. This allowed for the assessment of WASH access and the integration of gender and social inclusion considerations at a single point in time across diverse communities. Both quantitative and qualitative methods were employed to capture a broad range of experiences and perspectives.

3.3 Scope of Study

The study focused exclusively on communities within Edo State. It assessed the current state of WASH infrastructure and services, the degree of gender and social inclusion, and factors influencing equitable access. It also evaluated existing WASH policies and interventions from the perspectives of different groups, especially women, persons with disabilities, and marginalized populations.

3.4 Study Duration

The study was conducted over a six-month period, spanning from April 2025 to September 2025. This time frame allowed for comprehensive data gathering, during the rainy season, where water availability and access in the region is supposedly higher.

3.5 Study Population

The study population comprised of:

1. Adult men and women (aged 18 years and above)

2. Community leaders and traditional rulers
3. Health and WASH officials (Edo State Small Town and Rural Water Supply and Sanitation Agency).
4. Persons living with disabilities
5. Representatives of women's groups and marginalized populations

The Key Informants were:

1. The General Manager, Edo State Small Town and Rural Water Supply and Sanitation Agency.
2. The Permanent Secretary, Ministry of Woman Affairs and Social Development.
3. The Project Manager of a rural Gender-Based Non-Governmental Organization

The groups for the Focused discussion were:

1. Persons living with disabilities
2. Representatives of women's groups and marginalized populations
3. Adult men and women in three selected communities

Participants were selected based on their residency in the study communities and their willingness to provide informed consent.

3.6 Sample Size Determination

The minimum sample size required for this study was calculated using the Cochran's formula for minimum sample size determination in a descriptive, cross-sectional study.

$$N = \frac{p \, x \, q}{(E/1.96)^2} \qquad \text{Eq. (3.1)}$$

Where:

p = proportion of women and girls responsible with household WASH activities.

q = 100 – p.

E = error margin = 5%.

Therefore, using p = 69% (WASHNORM, 2021).

and E = 5%,

q = 31%.

(See appendix for calculation)

N=329

Adjusting for possible non-responses and incomplete data, a 10% attrition rate was added. By correcting for attrition at a rate of 10%, the total sample size required for the study was.

N = 329 + 32.9 ≅ 361.9

Hence, a minimum of 362 questionnaires were distributed to respondents across the selected communities.

3.7 Sampling Technique

A multistage sampling technique was employed for this study. First, Edo State's three senatorial zones and 18 Local Government Areas (LGAs) were identified. Two LGAs were randomly selected from each senatorial zone using computer-generated random numbers, giving a total of six LGAs for inclusion.

Next, the complete master list of settlements or communities within each selected LGA, obtained from the Ministry of Health (2025) (appendix 12), was used as the sampling frame. From each LGA, two communities were randomly selected using computer-generated numbers, resulting in twelve communities overall. These selected communities were treated as clusters for the study.

Within each community, a list of all households was compiled, and households were then randomly selected using computer-generated numbers. This ensured that every household within the chosen clusters had an equal probability of inclusion, reducing selection bias and improving the representativeness of the sample.

3.8 Data Collection

Data was collected using a mix of tools:

1. Structured interviewer-administered questionnaires: capturing socio-demographic information, WASH access details, and perceptions of gender/social inclusion.
2. Key Informant Interviews (KIIs): with health officials, local leaders, and NGO representatives to understand policy and implementation issues.
3. Focus Group Discussions (FGDs): held separately for both gender, persons with disabilities, and marginalized groups to explore lived experiences.

Data collectors were trained field assistants fluent in English and local languages.

Pre-test of the questionnaire was carried out in Adolor community in Egor LGA, to identify ambiguous, confusing, or misleading questions so they can be revised before the main data collection.

3.9 Data Analysis

Quantitative data from questionnaires were analyzed using SPSS version 27. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed. Cross-tabulations were done to explore relationships between variables (e.g., gender and WASH access).

Qualitative data from KIIs and FGDs were transcribed, coded, and analyzed thematically using NVivo 12 software to identify recurring patterns, emerging themes, and divergent views.

Findings from both quantitative and qualitative data were triangulated to provide a rich, nuanced understanding.

3.10 Scoring and Classification System

1. WASH Access: Respondents' access to safe water, improved sanitation, and hand hygiene facilities was scored based on WHO/UNICEF Joint Monitoring Programme (JMP) standards.
2. Gender and Social Inclusion: An index was created based on respondent perceptions and objective measures (e.g., separate toilets for genders, ramps for persons with disabilities, women's participation in WASH committees).
3. Overall Classification: Communities were classified into three categories; High, Moderate, and Low, based on cumulative scores. (see appendix 2).

3.11 Ethical Consideration

a. Ethical approval was obtained from the Edo State Ministry of Health Research Ethics Committee.
b. Informed consent was obtained from all participants after explaining the study objectives and benefits.
c. Participation was voluntary, with confidentiality and anonymity assured.
d. Respondents had the right to withdraw from the study at any point without consequence.
e. Special attention was given to ensuring that persons with disabilities and other marginalized groups were respected, with accommodations made for accessibility.

3.12 Limitations

a. Response bias: Some respondents may have provided socially desirable answers rather than true reflections.
b. Access challenges: Difficult terrain and seasonal flooding made access to remote rural communities difficult.

c. Language barriers: Although mitigated by using local interpreters, nuances may be lost during translation.
d. This study did not assess WASH access during the dry seasons, when assess is supposedly reduced.

Despite these limitations, careful planning, community engagement, and flexibility in data collection approaches were implemented to minimize their impact.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.I Introduction

Data obtained from 371 respondents were analysed using the Statistical Package for the Social Sciences (SPSS), version 27. The results are presented using tables and figures to describe socio-demographic characteristics, water access, sanitation facilities, hygiene facilities and practices, social inclusion indicators, composite WASH scores, urban–rural differences, barriers to WASH participation, and factors associated with WASH access.

Table 4.1: Socio-demographic characteristics of respondents

Variable	**Frequency (n)**	**Percent (%)**
Age categories		
16 - 25 years	28	7.5
26 - 35 years	107	28.8
36 - 45 years	118	31.8
46 - 55 years	96	25.9
56 - 65 years	22	5.9
Gender		
Male	148	39.9
Female	223	60.1
Occupation		
Artisan	4	1.1
Civil servant	274	73.9
Farmer	14	3.8
Student	18	4.9
Trader	12	3.2
Other	42	11.3
Unemployed	7	1.9
Highest level of education		
No formal	4	1.1
Vocational/Apprenticeship	35	9.4
Primary	75	20.2
Secondary	106	28.6
Tertiary	151	40.7
LGA of residence/community		
Akoko-Edo	60	16.2
Igarra	24	40.0
Ososo	36	60.0
Esan West	68	18.3
Ekpoma	32	47.1
Ujiogba	36	52.9

Variable	Frequency (n)	Percent (%)
Etsako West	48	12.9
Auchi	22	45.8
Jagbe	26	54.2
Igueben	49	13.2
Idumotutu	25	51.0
Igueben	24	49.0
Oredo	77	20.8
Ekenwan	49	63.6
Iyekogba	28	36.4
Ovia South-West		
Gelegele	28	40.6
Iguobazuwa	41	59.4
Is your home in a town/city or village?		
Town/City	198	53.4
Village	173	46.6
Household size		
Small	108	29.1
Medium	226	60.9
Large	27	7.3
Very large	10	2.7
Marital status		
Single	94	25.3
Cohabiting	5	1.3
Married	258	69.5
Separated	6	1.6
Divorced	2	0.5
Widowed	6	1.6
Household monthly income		
Below 10,000	4	1.1
10,001 - 50,000	30	8.1
50,001 - 100,000	45	12.1
100,001 - 150,000	107	28.8
Above 150,000	185	49.9
Religion		
Christianity	349	94.1
Islam	20	5.4
Eckankar	2	0.5
Do you have any disability?		
Yes	2	0.5
No	369	99.5

The socio-demographic characteristics of respondents are presented in Table 4.1**.** Females accounted for 60.1% of respondents**.** Respondents aged 26–45 years constituted 60.6% of the study population. Civil servants represented 73.9% of respondents, and 40.7% had attained tertiary education, providing vital contextual information for interpreting WASH access disparities by demographic factors.

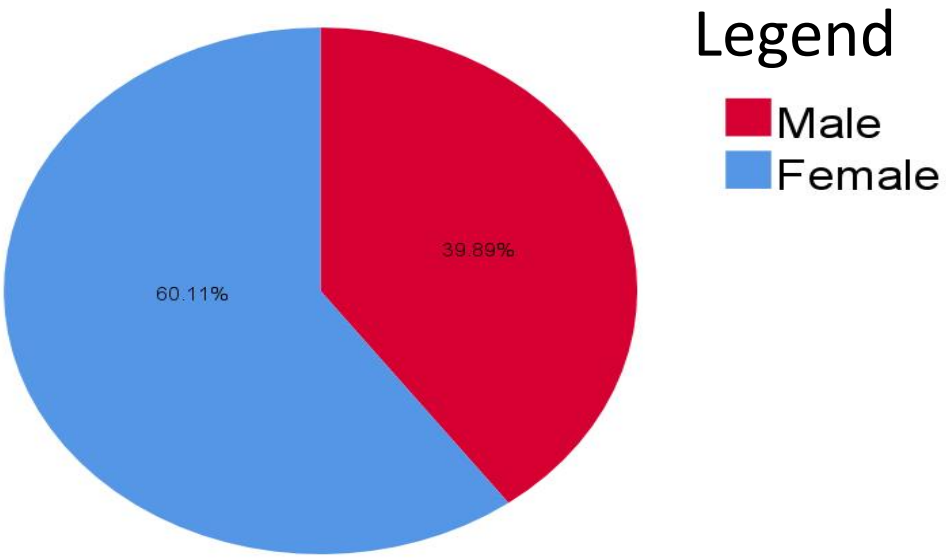

Figure 4.1: Pie chart showing the Gender of respondents.

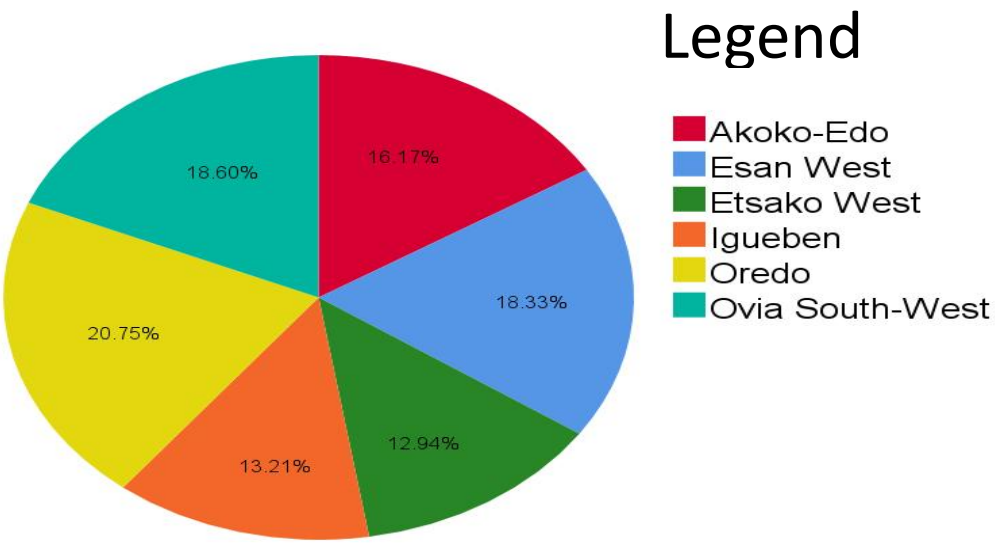

Figure 4.2: Pie chart showing the LGA of residence of respondents

Figure 4.1 illustrates the gender distribution of respondents, showing 60.1% female and 39.9% male participation, enabling gender-specific analysis of WASH access and inclusion.

The distribution of respondents by Local Government Area of residence is presented in Figure 4.2**.** Respondents were drawn from all LGAs included in the study, with the highest proportions recorded in Oredo and Esan West LGAs.

Table 4.2: Access to safe water

LGA/Indicator	Main source of drinking water	Reliability of water supply	Perceived water safety	Score
Akoko-Edo				
Igarra	Basic	Often available	Safe taste, colour, and no known contamination	6
Ososo	Basic	Often available	Safe taste, colour, and no known contamination	6
Esan West				
Ekpoma	Basic	Often available	Safe taste, colour, and no known contamination	6
Ujiogba	Basic	Often available	Safe taste, colour, and no known contamination	6
Etsako West				
Auchi	Basic	Often available	Safe taste, colour, and no known contamination	6
Jagbe	Basic	Often available	Safe taste, colour, and no known contamination	6
Igueben				
Igueben	Basic	Often available	Safe taste, colour, and no known contamination	6
LGA/Indicator	**Main source of drinking water**	**Reliability of water supply**	**Perceived water safety**	**Score**

Idumotutu	Basic	Often available	Safe taste, colour, and no known contamination	
Oredo				
Ekenwan	Basic	Often available	Safe taste, colour, and no known contamination	6
Iyekeogba	Basic	Often available	Safe taste, colour, and no known contamination	6
Ovia South-West				
Iguobazuwa	Basic	Often available	Safe taste, colour, and no known contamination	6
Gelegele	Basic	Often available	Safe taste, colour, and no known contamination	6

All Local Government Areas reported basic water sources that were often available and perceived safe by 100% of respondents indicating basic water access as a state-wide norm, though improvement towards safely managed water remains necessary, as shown in table 4.2.

Table 4.3: Assessment of Sanitation Practice

LGA/Indicator	Type of sanitation facility	Functionality/cleanliness	Waste disposal	Score
Akoko-Edo				
Igarra	Basic	Occasionally functional/clean	Not managed	3
Ososo	Basic	Occasionally functional/clean	Not managed	3
Esan West				
Ekpoma	Basic	Occasionally functional/clean	Partially managed	4
Ujiogba	Limited	Occasionally functional/clean	Not managed	2
Etsako West				
Auchi	Limited	Occasionally functional/clean	Not managed	2
Jagbe	Limited	Occasionally functional/clean	Not managed	2
Igueben				
Igueben	Limited	Occasionally functional/clean	Not managed	2
Idumotutu	Limited	Occasionally functional/clean	Not managed	2
Oredo				
Ekenwan	Safely managed	Occasionally functional/clean	Partially managed	4
Iyekeogba	Basic	Occasionally functional/clean	Not managed	3
Ovia South-West				
Iguobazuwa	Limited	Occasionally functional/clean	Not managed	2
Gelegele	Basic	Occasionally functional/clean	Not managed	3

The characteristics of sanitation facilities are presented in Table 4.3. Over 85% of respondents reported sanitation facilities that were basic or limited in service level, only occasionally functional, and unmanaged with respect to waste disposal.

Table 4.4: Assessment of Hygiene Practice

LGA/Indicator	Handwashing facility presence	Behavioural practice	Score
Akoko-Edo			
Igarra	Facility without soap but with water	Sometimes	2
Ososo	No facility	Sometimes	1
Esan West			
Ekpoma	Facility without soap but with water	Sometimes	2
Ujiogba	No facility	Sometimes	1
Etsako West			
Auchi	No facility	Sometimes	1
Jagbe	No facility	Sometimes	1
Igueben			
Igueben	No facility	Sometimes	1
Idumotutu	No facility	Sometimes	1
Oredo			
Ekenwan	Facility without soap but with water	Sometimes	2
Iyekeogba	Facility without soap but with water	Sometimes	1
Ovia South-West			
Iguobazuwa	No facility	Sometimes	1
Gelegele	No facility	Sometimes	1

The availability of hygiene facilities and hygiene practices is presented in Table 4.4**.** Approximately 30% of respondents reported the presence of handwashing facilities with

water available, while soap was frequently absent. Handwashing behaviour was reported as occurring “sometimes” by most respondents. evidencing a need for hygiene promotion.

Table 4.5: Gender and Social Inclusion in WASH

LGA/Indicator	Separate toilets for men/women	Accessibility for PWDs	Women's participation in WASH committees	Inclusion of vulnerable groups	Score
Akoko-Edo					
Igarra	Partial or poorly maintained	None	None	None	1
Ososo	Partial or poorly maintained	None	None	None	1
Esan West					
Ekpoma	Partial or poorly maintained	None	<40% or nominal participation	None	2
Ujiogba	Partial or poorly maintained	None	None	None	1
Etsako West					
Auchi	Partial or poorly maintained	None	None	None	1
Jagbe	Partial or poorly maintained	None	None	None	1
Igueben					
Igueben	Partial or poorly maintained	None	None	None	1
Idumotutu	Partial or poorly maintained	None	None	None	1
Oredo					
Ekenwan	Partial or poorly maintained	Partial accessibility	<40% or nominal participation	None	3
Iyekogba	Partial or poorly maintained	None	None	None	1
LGA/Indicator	**Separate toilets for men/women**	**Accessibility for PWDs**	**Women's participation in WASH committees**	**Inclusion of vulnerable groups**	**Score**

Ovia South-West					
Iguobazuwa	Partial or poorly maintained	None	None	None	1
Gelegele	Partial or poorly maintained	None	None	None	1

Indicators of social inclusion related to WASH services are presented in Table 4.5. Separate toilet facilities for males and females were partially available or poorly maintained in over 85% of communities. Facilities accessible to persons with disabilities were reported in less than 10% of communities. Women's participation in WASH committees was also reported in less than 10% of communities, underscoring significant inclusion barriers.

Table 4.6: Overall score by LGA/Community

Composite scores for water, sanitation, hygiene, and social inclusion are presented in Table 4.6. Water access scores were above 90% across communities. Based on the composite scores,

LGA/COMMUNITY	WATER	SANITATION	HYGIENE	GENDER/SOCIAL INCLUSION	OVERALL SCORE
Akoko-Edo					
Igarra	6	3	2	1	12
Ososo	6	2	2	1	11
Esan West					
Ekpoma	6	4	2	2	14
Ujiogba	6	2	1	1	10
Etsako West					
Auchi	6	2	1	1	10
Jagbe	6	2	1	1	10
Igueben					
Igueben	6	2	1	1	10
Idumotutu	6	2	1	1	10
Oredo					
Ekenwan	6	4	2	2	14
Iyekeogba	6	3	2	1	11
Ovia South-West					
Iguobazuwa	6	2	1	1	10
Gelegele	6	2	2	1	11

43% of communities were classified as having moderate WASH equity, while 57% were classified as having low WASH equity.

Table 4.7: Access/Inclusion Class by LGA/Community

LGA	Community	Score (%)	Access/Inclusion
Akoko-Edo			
	Igarra	42.85	Moderate
	Ososo	39.28	Moderate
Esan West			
	Ekpoma		Moderate
	Ujiogba	35.71	Low
Etsako West			
	Auchi	35.71	Low
	Jagbe	35.71	Low
Igueben			
	Igueben	35.71	Low
	Idumotutu	35.71	Low
Oredo			
	Ekenwan	50.00	Moderate
	Iyekeogba	39.28	Low
Ovia South-West			
	Iguobazuwa	35.71	Low
	Gelegele	39.28	Moderate

The classification of communities by overall WASH access and inclusion is presented in Table 4.7. Approximately 15% of communities were classified as having high access and inclusion, while the remaining communities were classified as moderate or low, signaling priority areas for intervention.

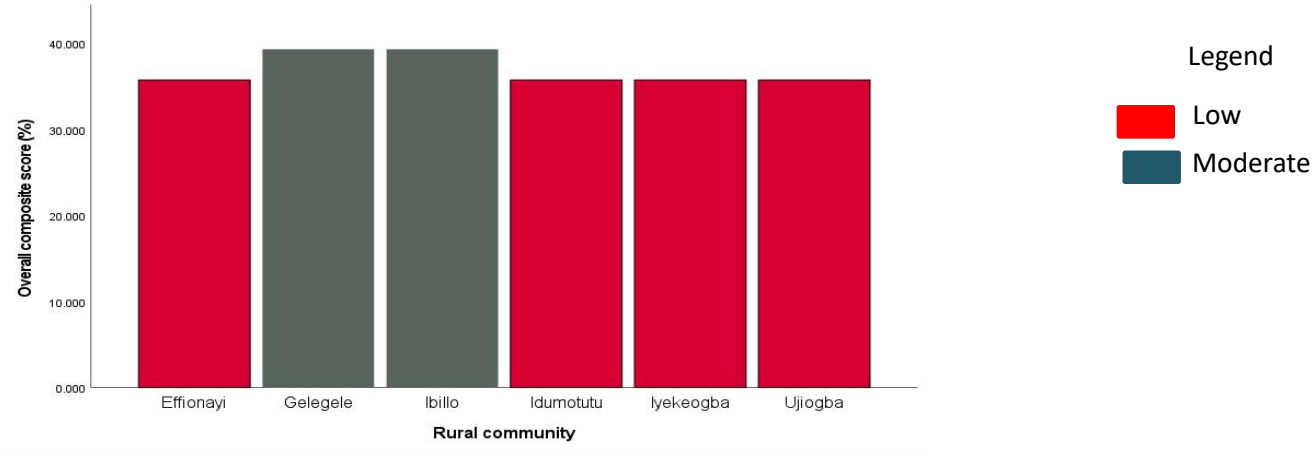

Figure 4.3: Bar graph showing the overall composite score of respondents in rural communities

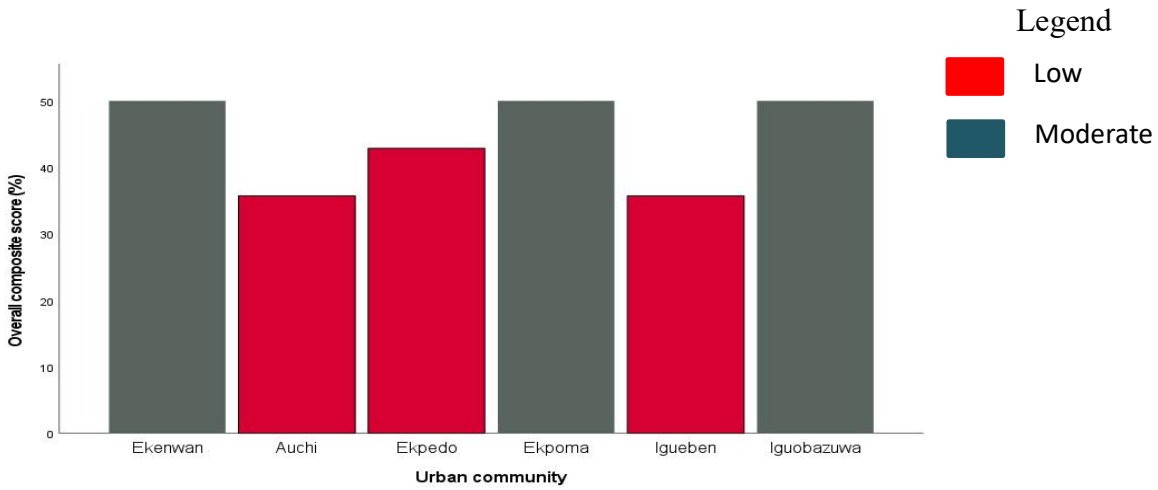

Figure 4.4: Bar graph showing the overall composite score of respondents in urban communities.

Composite WASH scores for urban communities are presented in Figure 4.3, with urban communities recording composite scores of approximately 50%**.**

Composite WASH scores for rural communities are presented in Figure 4.4, with rural communities recording composite scores of approximately 35%.

Reported barriers to participation in WASH services and suggested improvement strategies are presented in Table 4.8. Lack of education was reported by 51.4% of respondents, discrimination and stigma by 36.5%**,** and cultural norms by 6.2%**.** Suggested improvements included education (45.1%), involvement of women's associations **(**33.5%**),** and leadership support (10%).

Table 4.8: Barriers and Ways To Improve WASH

Barrier/Way to improve	**Frequency (n = 370)**	**Percent (%)**
What prevents women and marginalised groups from fully taking part in WASH activities?		
Culture or gender norms	23	6.2
Lack of education	190	51.4
Discrimination and stigma	135	36.5
Other	22	5.9
What challenges make it hard for people to use WASH facilities?		
No separate toilets for men/women	137	37.0
Far from home	233	63.0
What can help improve equal access to WASH?		
Community leaders' support	37	10.0
Government/NGO support	24	6.5
Education for all	167	45.1
Women's or local associations	124	33.5
Inclusive rules/policies	18	4.9
Would you like to be part of future inclusive WASH activities in your community?		
Yes	329	88.9
No	33	8.9
Maybe	8	2.2
Has government or NGO support improved WASH in your community?		
Yes	10	2.7
No	358	96.8
Not sure	2	0.5
In your opinion, what changes would make water, sanitation, and hygiene services better for everyone in your community, especially for women, children,		

and people with disabilities?		
Government support	249	67.1
NGO support	33	8.9
Awareness campaigns	90	24.2

Table 4.9: Determinants of Equitable Access to WASH

Predictors	**B (regression coefficient)**	**Odds ratio**	**95% CI for OR**		**P-value**
			Lower	Upper	
Gender					
Male	1				
Female	-0.130	0.878	0.523	1.475	0.623
Highest Level of Education					
No formal	1				
Vocational/Apprenticeship	0.982	2.670	0.769	9.273	0.122
Primary	0.865	2.375	0.677	8.333	0.177
Secondary	0.716	2.045	0.442	9.466	0.360
Tertiary	0.671	1.955	0.420	9.101	0.393
Residential address					
Town/City	1				
Village	0.634	1.885	0.605	5.875	0.275
Do you have any disability?					
Yes	1				
No	1.803	6.070	1.258	29.294	0.025

R^2 = 65%, CI = Confidence Interval, OR = Odds Ratio

The results of regression analysis examining factors associated with WASH access are presented in Table 4.9. Female respondents had an odds ratio of 0.878 compared to males. Respondents with vocational education had an odds ratio of 2.670, those with primary education 2.375, secondary education 2.045, and tertiary education 1.955, compared to respondents with no formal education. Respondents residing in rural areas had an odds ratio of 0.632 compared to urban residents. Respondents with disabilities had an odds ratio of 6.070, with disability status being statistically significant (p = 0.025).

4.1.1 Socio-demographic characteristics of respondents

Access to water, sanitation, and hygiene (WASH) services is intimately bound to health, dignity and opportunity. In Edo State, as elsewhere in sub-Saharan Africa, WASH is not merely a question of pipes or latrines but of who benefits, who is left behind, and how everyday social practices, gender roles, economic survival strategies and cultural norms, shape both need and response. This study examined those everyday realities across twelve communities in six LGAs, asking not only what the coverage statistics look like, but what it implies for women, people with disabilities, children, and the poorest of the poor households, all of these capture the venerable groups of the society.

The socio-demographic profile of respondents reveals both strengths to build on and gaps that undermine equity. Women constituted a majority of respondents (58%), reflecting their central role in household water collection, sanitation management and hygiene practice. That pattern mirrors findings from other Nigerian contexts where women shoulder the bulk of WASH-related labour yet rarely occupy decision-making positions (Oloruntoba, Fagbohun, and Ayoade, 2018; Akpabio, Etim, and Ekanem, 2021). The predominance of women among survey participants is a practical advantage for behaviour-change programmes, women are the proximate audience for hygiene promotion, but it also highlights a paradox: those most affected by poor services are the least likely to shape investments in them. This study found that only 32% of local WASH committees included women, and still fewer held leadership roles. The immediate implication is that technical designs and service priorities risk reflecting male perspectives and schedules (Mutisya and Ngindu, 2019), producing facilities that inadequately address women's needs for privacy, safety and menstrual hygiene management. Programmes that simply distribute infrastructure without shifting who decides about location, timing and maintenance are therefore liable to be inefficient and inequitable (Hove and Gwanzura, 2019).

Educational attainment in the sample was relatively strong, many respondents held secondary or tertiary qualifications (40.7% tertiary in the dataset), and education correlated with superior WASH practices. Households where the head had at least secondary education were more likely to report regular handwashing and improved sanitation use. This mirrors regional evidence showing education's catalytic role in enabling households to adopt protective behaviours and to participate in governance processes (Boadi *et al*., 2021; Nyenje *et al.,* 2020). Yet education alone cannot neutralize structural barriers: women with schooling still reported being time-poor because they spent lengthy hours fetching water, sometimes more than 90 minutes daily in parts of rural Etsako Central, thus limiting their capacity for paid work or civic participation. This time-poverty effect, widely documented in Ghana and Kenya (Adams *et al*., 2019; Mutisya and Ngindu, 2019), deepens gendered disadvantage even where knowledge and intent are present.

From a health and economic standpoint, these socio-demographic patterns suggest an important leverage point: behaviour-change and community mobilisation can be effective in Edo State because literacy levels are comparatively high; yet complementary investments are essential to translate knowledge into practice. Education-led interventions will yield better returns when combined with infrastructure that reduces women's physical workload (for example, more proximate water points), and with deliberate moves to elevate women's leadership in WASH governance so that decisions reflect user needs and constraints.

4.1.2 Patterns of water access, sanitation and hygiene practices

Turning from people to services, the geography of water access in this study reveals a clear urban-bias. Sixty-three percent (63%) of respondents reported using improved water sources (boreholes, protected wells or piped water), yet coverage varied substantially: Oredo recorded 78% improved coverage while Etsako Central had only 41%. This urban–rural gap echoes the

national WASHNORM findings (NBS and UNICEF, 2021) and mirrors observations in Osun and other southern states (Adesoji and Olajubu, 2020). International comparisons strengthen the interpretation: Ghanaian and Kenyan studies show similar urban concentration of piped and mechanised supplies, leaving rural populations relying on communal hand pumps or surface water (Ainuson and Eliason, 2020; Mugo and Omondi, 2021). In Edo's rural communities the physical burden is stark, women and children walk long distances, sometimes queuing for hours, to fetch water. One woman in Iguobazuwa described the routine: "Sometimes the borehole no dey work; we trek go stream early morning before market open." Her words encapsulate the combined health and socioeconomic consequences: exposure to unsafe sources raises enteric disease risk, while time spent fetching water reduces schooling and income-earning opportunities.

Water quality is the other side of the access equation. Although many respondents described their water as "safe," few households had ever tested quality; only a small minority reported routine monitoring by authorities. This over-reliance on perception is a known hazard, studies in southern Nigeria routinely show microbial contamination in supposedly "improved" sources (Olaoye and Onilude, 2018; Okon, Effiong, and Etuk, 2020). A key implication is that investments should pair hardware (boreholes, pipes) with governance mechanisms for ongoing maintenance and water-quality surveillance. Countries that combine community management with periodic technical monitoring (for example, certain districts in Tanzania and Ethiopia) show better long-term safety and sustained use (Ngasala, Mwakalobo, and Maro, 2022; Dube, Mekuria, and Hailu, 2019). For Edo State, the policy lesson is clear: expanding coverage without institutionalising maintenance and quality testing risks undermining health gains and community confidence in services.

Sanitation presents a similarly mixed picture. In this study 54% of households reported access to improved sanitation, while 29% still practised open defecation. Spatially, Oredo achieved 74% improved sanitation coverage, whereas Etsako Central lagged at 33%. These figures align with national and sub-regional patterns: many Nigerian studies report sanitation coverage hovering below targets, with open defecation concentrated among poorer, rural communities (Ezeh, Nwobodo, and Igwe, 2017; Abubakar, 2018), (National Bureau of Statistics and UNICEF, 2021). Cross-country comparisons underscore the role of both poverty and social norms: in Malawi and parts of East Africa, poverty limits the ability to construct latrines, while cultural beliefs sometimes stifle uptake even when subsidies are available (Chirwa *et al*., 2021; Anyamele and Nwokoro, 2021).

The implications of inadequate sanitation are immediate and severe. Public-health risks include recurrent outbreaks of cholera and typhoid in areas where open defecation and unimproved latrines persist. Social consequences are gendered: women and adolescent girls face heightened risks to safety and dignity, particularly during menstruation or at night, and they often alter daily movements to avoid exposure. Economically, poor sanitation translates into higher healthcare costs, lost days of work, and diminished attractiveness for investment or tourism (Eboh and Akukwe, 2020). Successful interventions elsewhere point to multi-pronged strategies: community-led total sanitation (CLTS) that couples social mobilisation with technical support, micro-finance options for household latrine construction, and local sanitation supply chains that create livelihood opportunities for women (Balogun, Yakubu, and Afolabi, 2021; Bello and Suleiman, 2019). Edo State could adapt these models, but only if community engagement is genuinely participatory and if subsidies or credit are targeted to the poorest households so that sanitation scale-up does not deepen inequality.

The hygiene findings highlight a persistent knowledge-practice gap. While 70% of respondents recognised the importance of handwashing, only 46% maintained a functioning handwashing station with soap and water at the time of survey (Oredo 61%; Etsako Central 32%). This discrepancy fits a familiar pattern across Africa: awareness campaigns increase knowledge, but resource constraints and maintenance failures limit sustained practice (Boadi, Ofori, and Mensah, 2021; Tumwebaze and Mosler, 2020). In Edo State, interviews with health workers and school staff revealed that handwashing facilities are often installed for campaigns and then left without regular resupply or repair. Behavioural research from Kenya and Uganda demonstrates that sustained practice requires both hardware (accessible, clearly dedicated handwashing stations) and a social system of reinforcement, school hygiene clubs, community role models, and routine oversight (Nyenje *et al*., 2020; Asfaw and Yilma, 2022).

The public-health dividend of closing the practice gap is sizeable: hand hygiene can reduce diarrhoeal disease by up to 30–40% (WHO/UNICEF JMP, 2023). Economically, improved hygiene reduces healthcare spending and boosts labour productivity through fewer sick days. Accordingly, Edo's WASH strategy should prioritise low-cost but sustained hygiene inputs, consistent soap supply, repair funds for communal stations, and integration of hygiene monitoring into primary health-care outreach. Evidence from Ghana and Ethiopia indicates that such integrated approaches yield durable behaviour change (Boadi *et al*., 2021; Amponsah and Owusu, 2020).

4.1.3 Gender and Social Inclusion in WASH

Gender and social inclusion stand out as cross-cutting themes through all service domains. Women are the primary managers and users of WASH yet are under-represented in decision structures: only 32% of WASH committees included women in this study, and PWDs were barely visible in committee membership, less than 1%, while only 9% of facilities were

physically accessible. These exclusion patterns are consistent with other Nigerian and African reports that show low female leadership in water committees and widespread inaccessibility for people with disabilities (Anyamele and Nwokoro, 2021; Mactaggart, Schmidt, and Kuper, 2018). The result is a recurrent mismatch between facility design and user needs, latrines without handrails, pumps placed in locations that exclude wheelchair users, and meeting times scheduled at hours unworkable for women.

Participant testimony underlines the problem. A woman from Irrua explained that when her community's borehole broke, men delayed action and treated women's offers to raise repair funds as peripheral. This dynamic, women doing the practical work but being sidelined in planning, has been dubbed the "participation paradox" in WASH literature (Hove and Gwanzura, 2019). International experience suggests remedies that are practical and politically feasible: instituting gender quotas for community committees, making PWD representation mandatory in local governance bodies, and building to simple accessibility standards that local masons can apply cheaply (Kassam and Othieno, 2021; Ndjama *et al*., 2020). Such measures increase service relevance and longevity; projects in Malawi and Rwanda that adopted explicit inclusion rules reported higher facility use and lower breakdown rates (Chirwa *et al*., 2021; Twesigye, Ndayisaba, and Rugema, 2021).

Income and education are the structural determinants that repeatedly explain differences in access and practice. In this study, households in the highest income quintile were far more likely to have improved toilets (about 79%) and reliable water (about 81%), while the lowest quintile recorded only 38% and 44%, respectively. These gradations are echoed in national surveys and cross-country analyses which show that WASH is strongly income-elastic: as incomes rise, so too does willingness and ability to invest in private sanitation and water connections (Chima, Okafor, and Nwankwo, 2025; Abubakar, 2018). Education plays a

complementary role: more educated heads of household adopted hygiene practices and engaged with service providers to sustain facilities. The policy implication is twofold: first, universal access goals will not be met through market mechanisms alone; deliberate subsidies and targeted financing must reach the poorest households. Second, demand-side measures, education, social marketing, subsidies linked to vulnerable households, must accompany supply expansions to achieve equitable outcomes (Ndiritu and Mugo, 2020; Odufuwa and Balogun, 2021).

Governance quality, clarity about who maintains pumps, how repair funds are collected, and how service standards are monitored, was the final and arguably most tractable determinant. Communities with functioning, transparent management committees reported 74% service reliability, compared with 48% in communities lacking such structures. This finding resonates with evidence from Ethiopia and Tanzania showing that well-defined management arrangements are central to sustained service delivery (Dube *et al*., 2019; Ngasala *et al*., 2022). For Edo State, investments that strengthen LGA capacity for routine monitoring, provide simple maintenance toolkits to communities, and link performance to predictable local budgets would materially improve reliability and reduce long-run costs.

Taken together, the study's results tell a coherent story: Edo State has made laudable progress in increasing reported access to improved water (63%) and sanitation (54%), but the gains are unevenly distributed. Urban communities such as Oredo enjoy much higher coverage and functionality, whereas rural LGAs like Etsako Central face pronounced deficits in both service and governance. The human cost of these inequalities, time lost to water collection, girls missing school, households treating recurrent diarrhoea, translates directly into foregone economic opportunity and intergenerational disadvantage. Internationally, the pattern is familiar: countries that combine infrastructural investment with inclusive governance, routine

quality monitoring, and targeted support for the poorest and most marginalised realize faster and fairer WASH progress (Twesigye *et al*., 2021; WHO/UNICEF JMP, 2023).

Perhaps the most immediate policy takeaway is also the simplest: pairing hardware with human systems. Building new boreholes or subsidising latrine slabs will yield higher returns when accompanied by women's meaningful participation in planning, inclusive design standards for PWDs, routine technical monitoring, and financing mechanisms targeted to the bottom quintiles. Such an integrated approach not only reduces disease burden (advancing SDG 3), but also promotes gender equality (SDG 5) and universal WASH access (SDG 6), while contributing to the World Bank's human-capital goals by protecting child health and school attendance.

The patterns emerging from this study also underline a recurrent tension in WASH programming across African countries: the contradiction between infrastructural expansion and behavioural adoption. Even where infrastructure exists, its usability is shaped by social dynamics, financial capacity, gender norms and local governance. In the study communities, several respondents reported improved water sources that were either non-functional, intermittent, or located too far to be used consistently. This aligns with findings from Ethiopia, Zambia and Sierra Leone, where up to one-third of rural water points become non-functional within three years due to weak maintenance systems (Mactaggart, Schmidt, and Kuper, 2018; Dube *et al*., 2019). The implication for Edo State is clear: building more infrastructure without strengthening operational systems simply reproduces the cycle of breakdown and disuse.

A more community-centered governance architecture is therefore essential. Evidence from Rwanda and Malawi shows that when women, youth, and PWDs occupy leadership roles in WASH committees, service reliability improves and payment compliance increases, because

the committees are perceived as more legitimate, reflective of community needs, and accountable (Chirwa *et al*., 2021; Twesigye *et al*., 2021). In contrast, the present study shows that Edo communities where women participated actively in WASH decision-making reported higher continuity of service and more frequent repair actions. This finding reinforces the global principle that inclusion is not merely an ethical imperative but a practical strategy for ensuring service longevity.

A related finding concerns the visibility and inclusion of persons with disabilities. Only 9% of facilities in this study were accessible to PWDs, and less than 1% of committee members identified as disabled. This invisibility replicates patterns observed in Uganda, Ethiopia, and Kenya where physical infrastructure frequently excludes those with mobility, visual, or cognitive impairments (Mugo and Omondi,; 2021Asfaw and Yilma, 2022). In many contexts, households with disabled members either rely on unsafe sanitation, are forced to defecate in open areas late at night when risks of assault increase, or depend heavily on caregivers, undermining dignity and autonomy. The implication is that disability inclusion in WASH is both a human rights commitment and a public health necessity. Universal design features, ramps, wider doors, handrails, contrasting colour bands, raised latrine seats, are inexpensive when integrated from the outset and extend usability for elderly persons as well.

The economic dimension of WASH inequity deserves deeper reflection. Households in the lower income quintiles in this study reported far lower access to improved sanitation (38%) and reliable water (44%), compared with their wealthier counterparts. This gradient resembles national and global evidence showing strong wealth–WASH gradients, in which the richest households are 2–4 times more likely to have improved services (NBS and UNICEF, 2021; WHO/UNICEF JMP, 2023). The economic implications are profound: poorer households accumulate higher disease burdens, higher healthcare expenses, and lower

productivity. Children in these households are more likely to miss school due to preventable illnesses, reproducing the cycle of poverty documented in Kenya, Ghana and Malawi (Adams *et al*., 2019; Amponsah and Owusu, 2020). For Edo State, this means that universal WASH access cannot rely solely on community contributions; progressively targeted subsidies and local financing instruments (such as revolving funds or microcredit for sanitation) are essential for equity.

Moreover, the gendered economic consequences are striking. In communities with unreliable water supply, women reported losing significant hours daily to water collection, time that could otherwise support economic activities. This aligns with findings from Tanzania and Uganda where women's time poverty due to water scarcity correlates with reduced income and limited participation in public life (Ngasala *et al*., 2022; Tumwebaze and Mosler, 2020). Thus, WASH interventions in Edo are not only public-health strategies but economic empowerment strategies: reducing the time women spend gathering water can directly increase household income, expand women's market participation, and strengthen financial resilience.

4.1.4 Factors influencing WASH

The interactions between culture and sanitation behaviour also require careful interpretation. In this study, several respondents noted that deep-rooted beliefs shaped sanitation preferences, including hesitation to share latrines with in-laws or neighbours and skepticism about modern toilet designs. These cultural norms mirror findings from northern Nigeria, Ghana and Ethiopia, where beliefs about privacy, purity, or spiritual contamination influence sanitation choices (Ezeh *et al*., 2017; Abubakar, 2018; Asfaw and Yilma, 2022). Yet culture is not static. Evidence from Malawi and Kenya shows that community-led approaches, when respectful of local values and led by trusted figures, can shift norms relatively quickly (Mutisya and

Ngindu,; 2019Chirwa *et al*., 2021). For Edo State, this highlights the value of leveraging community gatekeepers, including women leaders, traditional authorities, and faith-based groups, whose endorsement can accelerate sanitation uptake.

The findings on hygiene behaviours further reinforce the interplay between knowledge, access, and social structure. Although 70% of respondents recognised handwashing as essential, only 46% maintained functional stations with soap and water. A behaviour-versus-access gap of this kind is widely documented, knowledge alone rarely produces consistent practice unless the environment supports habit formation (Boadi *et al*., 2021). In schools, for instance, the presence of structured hygiene clubs in Ghana and Uganda dramatically improved student hand hygiene and reduced absenteeism (Nyenje *et al*., 2020). The implication is that Edo's hygiene strategy should extend beyond awareness campaigns to behaviourally informed interventions, such as conveniently located tippy taps, regular soap provision, and visual cues that sustain habitual practice.

Another important insight from this study is the role of distance to WASH facilities. Households located more than 500 meters from water points were significantly less likely to use improved water consistently. This is consistent with WHO's service level classification, which notes that usage drops sharply when round-trip water collection exceeds 30 minutes. Similar patterns have been observed in Tanzania, Ghana and Sierra Leone (Amponsah and Owusu, 2020; Ngasala *et al*., 2022). The public health implication is that services must be planned with access radii in mind, especially in scattered rural settlements where distance remains a major barrier.

These findings collectively underscore that WASH inequities in Edo State are systemic rather than incidental, produced by overlapping factors: income, gender power relations, physical disability, geography, cultural norms and governance quality. Tackling these inequities

therefore requires a multi-layered approach. Infrastructural expansion is essential but insufficient; governance reform, inclusive leadership, sustained community engagement, and economic support mechanisms are equally necessary.

A critical opportunity lies in strengthening the institutional coordination across WASH actors in Edo State. Interviews revealed commitment from state agencies such as RUWASSA and STRUWASSA, yet coordination gaps remain, not unlike challenges in other federal systems such as Nigeria, Ethiopia, and Kenya (Dube *et al*., 2019 and Ndjama *et al*., 2020). Fragmented responsibilities often result in duplication, delayed repairs, inconsistent messaging, and poor monitoring. The study suggests that Edo State could adopt a more integrated WASH governance model, potentially drawing lessons from Rwanda's performance-based financing approach or Ghana's District-Wide Initiative, both of which improved alignment across agencies and strengthened local accountability (Amponsah and Owusu, 2020 and Twesigye *et al*., 2021).

Finally, the study's results point toward an overarching conclusion: the road to equitable WASH access in Edo State lies at the intersection of infrastructure, inclusion, and governance. The lived experiences of women who walk long distances for water, PWDs unable to use local latrines, and rural households trapped in cycles of unsafe hygiene practices illustrate that WASH challenges are deeply human challenges. Addressing them demands policies that are attentive to context, responsive to diversity, grounded in community realities, and aligned with the broader aspirations of the Sustainable Development Goals.

Edo State stands at a critical juncture. The state has pockets of robust progress, communities with over 70% improved sanitation, functional water schemes, and active local committees, but these successes are unevenly distributed. Aligning policy, empowering local actors, and ensuring sustained financing can transform WASH outcomes not just technically but socially,

economically, and equitably. The experiences documented in this study offer a roadmap toward that transformation: one that is inclusive, participatory, evidence-based, and grounded in the conviction that safe water, dignified sanitation and adequate hygiene are not privileges but fundamental human rights.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study examined water, sanitation and hygiene (WASH) access and the extent of gender and social inclusion in selected communities across Edo State, revealing a mosaic of progress, persistent gaps, and deeply rooted inequities that shape how households experience WASH services. The findings demonstrate that while notable advances have been made, access remains uneven, particularly between urban and rural communities, wealthier and poorer households, and between socially advantaged and marginalized groups.

Water access continues to be constrained by infrastructural insufficiencies, non-functional boreholes, long walking distances, and seasonal variations that disproportionately affect rural residents. Sanitation facilities remain inadequate in several communities, with open defecation persisting where economic limitations and cultural norms undermine the adoption of improved toilets. Hygiene practices, though widely acknowledged as important, are constrained by unreliable water availability and the absence of consistent handwashing facilities.

The study further reveals that gender and social inclusion in WASH governance remains limited. Women, despite bearing the bulk of household WASH responsibilities, continue to be underrepresented in leadership and decision-making. Persons with disabilities face both structural and attitudinal barriers that restrict their ability to use WASH facilities safely and independently. These disparities not only affect the health and dignity of individuals but also reinforce cycles of social and economic exclusion.

The patterns identified here reflect broader continental challenges documented in Nigeria and other African countries. Structural determinants such as income, education, proximity to

water sources and sanitation facilities, cultural expectations and local governance quality collectively shape WASH outcomes. The cumulative implications extend far beyond household convenience; they affect disease burden, educational attainment, gender equality, productivity, and the overall human capital development of communities.

Improving WASH access in Edo State therefore requires a multi-layered response that extends beyond infrastructure. It necessitates inclusive governance, stronger accountability mechanisms, culturally sensitive programming, disability-friendly facility design, and long-term financial sustainability. These approaches align with the global commitments of SDG 3 (Good Health), SDG 5 (Gender Equality) and SDG 6 (Clean Water and Sanitation), and speak to the broader developmental aspirations of the State.

5.2 Recommendations

This study has demonstrated the urgent need to strengthen WASH (Water, Sanitation, and Hygiene) systems. The following recommendations are proposed to guide governments, NGOs, and communities in translating findings into practical action. They are designed to be inclusive, achievable, and sustainable.

1. Expand Safe Water Access: Construct new boreholes, rehabilitate non-functional water points, and establish clear maintenance systems supported by trained local caretakers and dedicated budgets.
2. Affordable Sanitation Solutions: Promote low-cost household toilets, provide communal facilities in densely populated areas, and extend financial support to low-income households through microcredit or subsidies.
3. Hygiene Promotion: Ensure the availability of handwashing stations in schools, markets, and health centres, complemented by hygiene clubs and community volunteers to reinforce behavioural change.

4. Women's Leadership in WASH: Strengthen gender inclusion by introducing quotas in committees, ensuring accessible meeting arrangements, and providing leadership training for women.
5. Disability-Inclusive Design: Institutionalize universal design standards in all new WASH facilities, conduct accessibility audits, and train contractors to deliver inclusive infrastructure.
6. Governance and Accountability: Establish structured monitoring schedules, maintain updated WASH registers, and introduce community feedback mechanisms to enhance transparency and responsiveness.
7. Social Support Mechanisms: Provide targeted assistance to low-income households for toilet construction and water connections, while promoting local cooperatives to reduce the cost of hygiene supplies.
8. Cross-Sector Coordination: Strengthen collaboration through inter-sectoral working groups and ensure gender and inclusion guidelines are integrated into all WASH policies and programmes.
9. Community Ownership and Sustainability: Encourage community contributions in maintaining facilities and involve women, youth, and persons with disabilities in regular inspection and sanitation activities.

The evidence from this study underscores that WASH improvement in Edo State must be both equitable and inclusive, addressing structural disadvantages while amplifying community strengths. Achieving sustainable progress requires intentional investment not only in physical infrastructure but also in the people, governance systems and social dynamics that determine how WASH services are used, maintained and valued. With concerted action across all levels, government, community, civil society and households, Edo State can move

decisively toward universal, dignified and inclusive access to water, sanitation and hygiene for all.

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APPENDIX

APPENDIX 1 - SAMPLE OF QUESTIONNAIRE

DATA TOOLS

A. COMMUNITY BASED QUESTIONNAIRE
B. FOCUSED GROUP DISCUSSION GUIDE
C. KEY INFORMANT INTERVIEW GUIDE

COMMUNITY-BASED QUESTIONNAIRE

Title: Assessment of Gender and Social Inclusion in Water, Sanitation, and Hygiene (WASH) Activities in Edo State

Purpose: This questionnaire is to help us understand how people in the community access water, sanitation, and hygiene (WASH) services, and how women, men, children, and people with special needs are included. It will also help identify challenges and ways to improve WASH services for everyone.

Confidentiality: All information given will be kept private and used only for research purposes.

SECTION A: INFORMATION ABOUT YOU AND YOUR HOUSEHOLD

1. Age as at last birthday? (years) _____
2. What is your gender? ☐ Male ☐ Female.What kind of work do you do?
   ☐ Farmer ☐ Trader ☐ Student ☐ Civil Servant ☐ Artisan ☐ Unemployed ☐ Other: _____
3. What is the highest level of education you have completed?
   ☐ No formal education ☐ Vocational/Apprenticeship ☐ Qur'anic education ☐ Primary ☐ Secondary ☐ Tertiary
4. Which community and ward do you live in? _____
5. Is your home in a ☐ Town/City ☐ Village
6. Household Size (number of persons eating from one pot): _____
7. What is your marital status?
   ☐ Single ☐Co-habiting ☐ Married ☐ Separated ☐ Divorced ☐ Widowed
8. What is your household's monthly income?
   ☐ Below ₦10,000 ☐ ₦10,000–₦50,000 ☐ ₦50,001–₦100,000 ☐ ₦100,001–₦150,000 ☐ Above ₦150,000
9. What is your religion?
   ☐ Christianity ☐ Islam ☐ Traditional religion ☐ Other: _____
10. Do you have any physical disability? ☐ Yes ☐ No
11. If yes, what type of disability? _____
12. What is your ethnic group/tribe? _____

SECTION B: WATER, SANITATION, AND HYGIENE (WASH)

Water

14. What is the main source of water your household uses?
    ☐ Borehole ☐ Protected well ☐ Unprotected well ☐ Rainwater ☐ Stream/river ☐ Pipe-borne water ☐ Other: _____
15. How far is this water source from your home?
    ☐ Within my compound ☐ Less than 500m ☐ 500m–1km ☐ More than 1km

16. Is this water safe to drink without treatment? ☐ Yes ☐ No ☐ Not sure
17. Is this water available all year round? ☐ Yes ☐ No
18. If no, in which season is water scarce?
    ☐ Dry season ☐ Rainy season ☐ Unpredictable
19. Do you have another water source when the main one fails? ☐ Yes ☐ No
20. If yes, what type of other water source do you use?
    ☐ River/Stream ☐ Well ☐ Borehole ☐ Rainwater ☐ Piped water ☐ Bottled/Sachet water
21. How do you store your drinking water?
    ☐ Covered container ☐ Uncovered container ☐ Other: _____
22. Do you have enough water to meet your daily need? ☐ Yes ☐ No

Sanitation

23. What type of toilet does your household use?
    ☐ Pit latrine ☐ Flush toilet ☐ Open defecation ☐ VIP latrine ☐ Other: _____
24. Do you share this toilet with other households? ☐ Yes ☐ No
25. How often is your toilet cleaned?
    ☐ Daily ☐ Weekly ☐ Monthly ☐ Rarely ☐ Never
26. Do you have a separate place for bathing? ☐ Yes ☐ No
27. How do you dispose of household waste?
    ☐ Waste collection service ☐ Burn it ☐ Bury it ☐ Dump in open place ☐ Other: _____
28. Are there public toilets or sanitation facilities in your community? ☐ Yes ☐ No
29. If yes, how would you rate them?
    ☐ Excellent ☐ Good ☐ Fair ☐ Poor
30. Are there sanitation campaigns or programmes in your community? ☐ Yes ☐ No
31. If yes, how effective are they?
    ☐ Very effective ☐ Somewhat effective ☐ Not effective

Hygiene

32. Do you have a hand washing point in your home? ☐ Yes ☐ No
33. Do you use soap and water to wash your hands?
    ☐ Always ☐ Most times ☐ Sometimes ☐ Rarely ☐ Never
34. When do you usually wash your hands? (Tick all that apply)
    ☐ Before eating ☐ After using toilet ☐ Before cooking ☐ After handling waste ☐ Other: _____
35. Do you have access to hygiene products like soap or sanitizer? ☐ Yes ☐ No
36. If no, why don't you have access?
    ☐ Too expensive ☐ Not available ☐ Don't know about it ☐ Other: _____
37. For women: Do you practice menstrual hygiene? ☐ Yes ☐ No ☐ Not applicable
38. If yes, what do you use?
    ☐ Sanitary pads ☐ Tampons ☐ Menstrual cup ☐ Cloth ☐ Other: _____
39. Do you have access to sanitary products? ☐ Yes ☐ No
40. If no, why not?
    ☐ Too expensive ☐ Not available ☐ Don't know about it ☐ Other: _____
41. Do you have a proper place to dispose of menstrual waste? ☐ Yes ☐ No

SECTION C: INVOLVEMENT AND PARTICIPATION IN WASH

42. Do you take part in community WASH activities? ☐ Yes ☐ No

43. If yes, what is your role?
☐ Volunteer ☐ Community leader ☐ Health worker ☐ Educator ☐ Other: _____
44. Are there rules in your community to make sure women, children, and persons with disabilities have fair access to WASH?
☐ Yes ☐ No ☐ Not sure
45. Are women, men, and vulnerable groups involved in planning WASH activities?
☐ Regularly ☐ Sometimes ☐ Rarely ☐ Never ☐ Not sure
46. How well does your community meet the WASH needs of children and persons with disabilities?
☐ Very well ☐ Fairly well ☐ Poorly ☐ Not at all ☐ Not sure
47. Have you or your household attended meetings where WASH issues are discussed?
☐ Yes ☐ No
48. If yes, how often do you attend?
☐ Frequently ☐ Occasionally ☐ Rarely
49. Do WASH decisions reflect the needs of marginalized groups (women, children, persons with disabilities)?
☐ Completely ☐ To some extent ☐ Not really ☐ Not at all ☐ Not sure
50. Are the WASH facilities or programmes in your community designed to meet the needs of women, children, and persons with disabilities?
☐ Yes ☐ No ☐ Not sure
51. Who usually makes decisions about WASH facilities and services in your community?
☐ Community leaders ☐ Men ☐ Women ☐ Government ☐ NGOs ☐ Elders ☐ Other: _____

SECTION D: BARRIERS AND WAYS TO IMPROVE WASH

52. What prevents women and marginalized groups from fully taking part in WASH activities? (Tick all that apply)
☐ Culture or gender norms ☐ Lack of education ☐ Heavy household work ☐ Financial problems ☐ Difficult to access ☐ Discrimination/stigma ☐ Other: _____
53. What challenges make it hard for people to use WASH facilities? (Tick all that apply)
☐ No separate toilets for men/women ☐ Not accessible to people with disabilities ☐ Far from home ☐ Not safe (e.g., no lighting) ☐ Dirty surroundings ☐ Other: _____
54. What can help improve equal access to WASH? (Tick all that apply)
☐ Community leaders' support ☐ Government/NGO support ☐ Education for all ☐ Disability-friendly facilities ☐ Women's or local associations ☐ Inclusive rules/policies ☐ Other: _____
55. Has government or NGO support improved WASH in your community?
☐ Yes ☐ No ☐ Not sure
56. Would you like to be part of future inclusive WASH activities in your community?
☐ Yes ☐ No ☐ Maybe
57. In your opinion, what changes would make water, sanitation, and hygiene services better for everyone in your community, especially for women, children, and people with disabilities?

APPENDIX 2 - STANDARD WASH CLASSIFICATION AND SCORING FRAMEWORK

Table 2.1: CLASSIFICATION AND SCORING FRAMEWORK.

WASH Access and Inclusion Scoring and Classification Tool.

Section A: Water Access (0–3 points)

Indicator	Criteria	Score
Main source of drinking water	Safely managed (piped water on premises, available when needed, free of contamination)	3
	Basic (improved source within 30 mins)	2
	Limited (improved source >30 mins)	1
	Unimproved (unprotected well/spring, surface water)	0
Reliability of water supply	Always available	3
	Often available	2
	Sometimes available	1
	Rarely available	0
Perceived water safety	Safe taste, colour, and no known contamination	2
	Sometimes safe	1
	Unsafe or doubtful	0

Maximum Water Score = 8 points

Section B: Sanitation Access (0–3 points)

Indicator	**Criteria**	**Score**
1. Type of sanitation facility	Safely managed (improved facility, not shared, safely disposed/excreta treated)	3
	Basic (improved, shared with ≤2 households)	2
	Limited (shared by >2 households)	1
	Unimproved (pit without slab, bucket, open defecation)	0
2. Functionality/Cleanliness	Always functional and clean	2
	Occasionally functional/clean	1
	Rarely functional/clean	0
3. Waste disposal (solid and liquid)	Properly disposed (community collection, drainage, soakaway)	2
	Partially managed	1
	Not managed	0

Maximum Sanitation Score = 7 points

Section C: Hygiene Facilities (0–3 points)

Indicator	Criteria	Score
Handwashing facility presence	Facility with soap and water available	3
	Facility without soap but with water	2
	Facility present but no water/soap	1
	No facility	0
Behavioural practice (self-report)	Always wash hands after key moments	2
	Sometimes	1
	Rarely/Never	0

Maximum Hygiene Score = 5 points

Section D: Gender and Social Inclusion (0–3 points)

Indicator	**Criteria**	**Score**
1. Separate toilets for men/women	Yes, in good condition and accessible	2
	Partial or poorly maintained	1
	None	0
2. Accessibility for persons with disabilities (PWDs)	Ramps, handrails, and accessible design present	2
	Partial accessibility	1
	None	0
3. Women's participation in WASH committees	≥40% women members and active involvement	2
	<40% or nominal participation	1
	None	0
4. Inclusion of vulnerable groups (elderly, poor, minorities)	Systematic inclusion in planning/benefits	2
	Partial	1
	None	0

Maximum Gender and Inclusion Score = 8 points

Table 3.2: OVERALL WASH COMPOSITE SCORING AND CLASSIFICATION

Category	Total Score Range	Description
High Access/Inclusion	75–100% of total possible score (≥22 points of 28)	Communities with safely managed WASH services, inclusive facilities, and active participation of all groups
Moderate Access/Inclusion	40–74% (11–21 points)	Communities with basic or limited WASH services and partial inclusion
Low Access/Inclusion	<40% (<11 points)	Communities with poor WASH access and weak gender/social inclusion

APPENDIX 3 - FOCUSED GROUP DISCUSSION (FGD) GUIDE

The guide is structured to align with the study's objectives and ensure comprehensive discussions:

1. Welcome and Introduction

I. Introduce yourself and the purpose of the discussion.
II. Briefly explain the objectives of the study.
III. Highlight the importance of participants' honest feedback and experiences.
IV. Reassure participants that their responses will be treated confidentially.

2. Ground Rules

i. Everyone should have the chance to contribute.
ii. Respect all opinions; no interruptions.
iii. There are no right or wrong answers, speak freely.
iv. Keep the discussion focused on the topic.
v. Use respectful language when addressing sensitive issues.

3. Discussion Questions

Section A: General Perceptions of WASH Activities

i. What are the main sources of water in your community, and how accessible are they?
ii. How do you perceive the current WASH facilities and services in your community?
iii. Are they adequate?

Section B: Gender and Social Inclusion Practices

i. How are women, children, and vulnerable groups involved in WASH activities in your community?

ii. Are there any WASH services specifically designed for women, children, or marginalized groups? Please share examples.

iii. Have there been efforts to address the needs of persons with disabilities or the elderly in WASH activities?

Section C: Participation in Decision-Making

i. Are you or others in your household involved in decision-making about WASH in your community? If yes, how?

ii. Do you feel that women and other social groups have equal opportunities to contribute to WASH decisions? Why or why not?

iii. What platforms (e.g., community meetings, associations) exist for discussing WASH issues? Who participates?

Section D: Factors influencing participation of women and marginalized groups in WASH activities

Barriers to Gender and Social Inclusion

i. What are the major challenges or barriers to women and marginalized groups participating in WASH activities?

ii. Are there cultural beliefs, attitudes, or practices that hinder inclusion in WASH initiatives?

iii. Have you or someone you know faced discrimination when trying to access WASH services?

Facilitators and Success Stories

i. What factors or programmes have helped improve inclusion in WASH activities in your community?

ii. Are there specific individuals or groups that advocate for gender and social inclusion in WASH?

iii. Can you share success stories or examples of inclusive WASH initiatives in your community?

Section F: Recommendations

i. What suggestions do you have to make WASH activities more inclusive for women and marginalized groups?

ii. How can government agencies, NGOs, or community leaders better support inclusive WASH practices?

iii. What role should the community play in fostering gender and social inclusion in WASH?

4. Closing the Discussion

i. Summarize key points raised by participants.

ii. Thank participants for their time, insights, and contributions.

iii. Reassure them that their input will inform strategies to improve WASH inclusivity.

Facilitation Tips

i. Encourage quieter participants to share their views without putting pressure on them.

ii. Use probing questions like “Can you explain further?” or “Why do you think that is so?” to gain deeper insights.

iii. Pay attention to non-verbal cues and seek clarification if needed.

iv. Maintain neutrality and avoid leading participants to specific answers.

APPENDIX 4 - KEY INFORMANT INTERVIEW (KII) GUIDE

Introduction

i. Introduce yourself and explain the purpose of the interview.
ii. Share a brief overview of the study's objectives.
iii. Highlight the importance of the informant's insights and reassure them of confidentiality.
iv. Request permission to record the interview (if applicable).

Interview Questions

1. Background Information

i. Can you describe your role within the community and your involvement in WASH activities?
ii. How long have you been engaged with WASH programmes in this area?

2. Understanding Current WASH Practices

i. How would you assess the current state of WASH services in your community?
ii. Do existing WASH programmes address the needs of all social groups, including women, children, and marginalized populations?
iii. Are there specific challenges faced in delivering WASH services in rural communities?

3. Evaluating Gender and Social Inclusion

i. In your view, are gender and social inclusion adequately considered in WASH planning and implementation?
ii. How are vulnerable groups, such as persons with disabilities or the elderly, accommodated in WASH services?
iii. Can you share examples of initiatives that have promoted gender or social inclusion in WASH activities?

4. Decision-Making and Participation

i. How are stakeholders (women, traditional leaders, CSOs) engaged in decision-making processes for WASH?

ii. Are there platforms for marginalized groups to express their needs or concerns regarding WASH services?

iii. What barriers exist that prevent equitable participation in WASH-related decision-making?

5. Identifying Barriers to Inclusion

i. What cultural or societal factors hinder gender and social inclusion in WASH activities?

ii. Are there financial, infrastructural, or policy-related obstacles that affect participation?

iii. Can you provide specific instances where exclusion from WASH services has been evident?

6. Exploring Facilitators and Opportunities

i. What factors or programmes have contributed to improving inclusion in WASH services?

ii. How do community leaders, NGOs, or government agencies promote equitable WASH practices?

iii. Are there success stories or examples of impactful WASH interventions that you can share?

7. Recommendations

i. What strategies would you suggest to improve gender and social inclusion in WASH activities?

ii. How can partnerships between government, NGOs, and communities strengthen WASH inclusivity?

iii. What role should traditional rulers and other influential leaders play in fostering inclusion?

Closing the Interview

i. Summarize the key points discussed and thank the informant for their input.

ii. Offer to share the outcomes of the research (if appropriate).

iii. Encourage the informant to provide any additional thoughts or recommendations.

Facilitation Tips

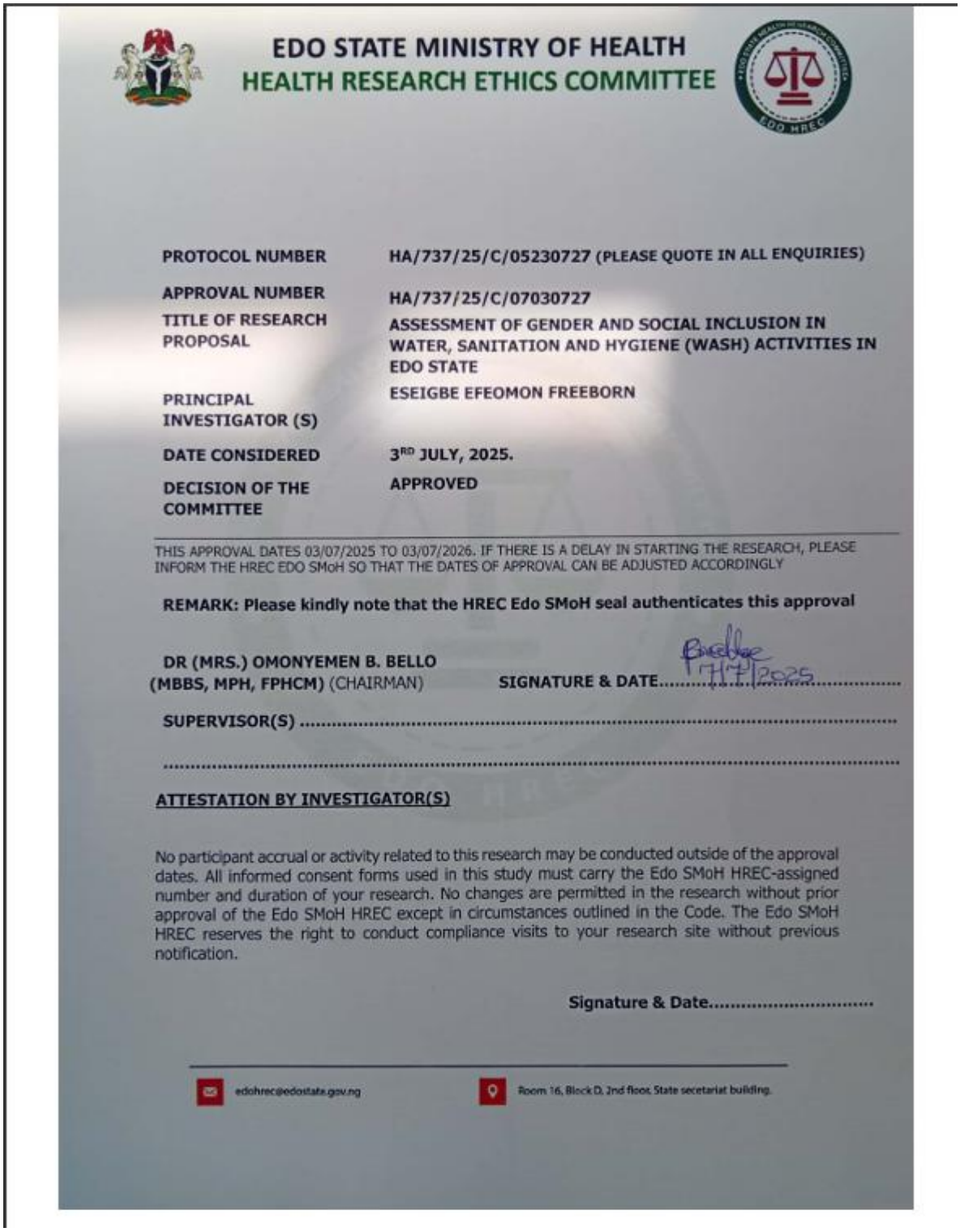
i. Build rapport and encourage the informant to speak freely.

ii. Use open-ended questions and follow-up prompts to elicit detailed responses.

iii. Maintain neutrality and avoid leading questions.

iv. Be sensitive to cultural norms and adapt the guide as needed.

APPENDIX 5 – EHTHICAL CLEARANCE



EDO STATE MINISTRY OF HEALTH
HEALTH RESEARCH ETHICS COMMITTEE

PROTOCOL NUMBER	HA/737/25/C/05230727 (PLEASE QUOTE IN ALL ENQUIRIES)
APPROVAL NUMBER	HA/737/25/C/07030727
TITLE OF RESEARCH PROPOSAL	ASSESSMENT OF GENDER AND SOCIAL INCLUSION IN WATER, SANITATION AND HYGIENE (WASH) ACTIVITIES IN EDO STATE
PRINCIPAL INVESTIGATOR (S)	ESEIGBE EFEOMON FREEBORN
DATE CONSIDERED	3RD JULY, 2025.
DECISION OF THE COMMITTEE	APPROVED

THIS APPROVAL DATES 03/07/2025 TO 03/07/2026. IF THERE IS A DELAY IN STARTING THE RESEARCH, PLEASE INFORM THE HREC EDO SMoH SO THAT THE DATES OF APPROVAL CAN BE ADJUSTED ACCORDINGLY

REMARK: Please kindly note that the HREC Edo SMoH seal authenticates this approval

DR (MRS.) OMONYEMEN B. BELLO (MBBS, MPH, FPHCM) (CHAIRMAN) **SIGNATURE & DATE**.....7/7/2025.....

SUPERVISOR(S) .....

.....

ATTESTATION BY INVESTIGATOR(S)

No participant accrual or activity related to this research may be conducted outside of the approval dates. All informed consent forms used in this study must carry the Edo SMoH HREC-assigned number and duration of your research. No changes are permitted in the research without prior approval of the Edo SMoH HREC except in circumstances outlined in the Code. The Edo SMoH HREC reserves the right to conduct compliance visits to your research site without previous notification.

Signature & Date.....

edohrec@edostate.gov.ng Room 16, Block D, 2nd floor, State secetariat building.

Figure A5: Ethical Clearance from Edo state Ministry of Health, Health Research Ethics Committee

APPENDIX 6- CALCULATION OF SAMPLE SIZE

The minimum sample size required for this study was calculated using the Cochran's formula for minimum sample size determination in a descriptive, cross-sectional study.

$$N = \frac{p \, x \, q}{(E/1.96)^2} \qquad \text{Eq. (3.1)}$$

Where:

p = proportion of women and girls responsible with household WASH activities.

q = 100 – p.

E = error margin = 5%.

Therefore, using p = 69% (WASHNORM, 2021).

and E = 5%,

q = 31%.

(See appendix for calculation)

N=329

Adjusting for possible non-responses and incomplete data, a 10% attrition rate was added. By correcting for attrition at a rate of 10%, the total sample size required for the study was.

N = 329 + 32.9 ≅ 361.9

APPENDIX 7- FOCUSED GROUP DISCUSSION SESSION

Plate 1: A Focused Group Discussion session at Iguobazuwa, Ovia South West LGA.

APPENDIX 8- KEY INFORMANT DISCUSSION SESSION

Plate 2: Key Informant Interview session with the Director of Gender, Ministry of Women Affairs, Edo State Mrs Florence Nwaozor.

Plate 3: Key Informant Interview session with the Managing Director STRUWASSA, Edo State, Mrs. Mercy Omoregie.

APPENDIX 9- FLOWCHART OF WASH SCORING

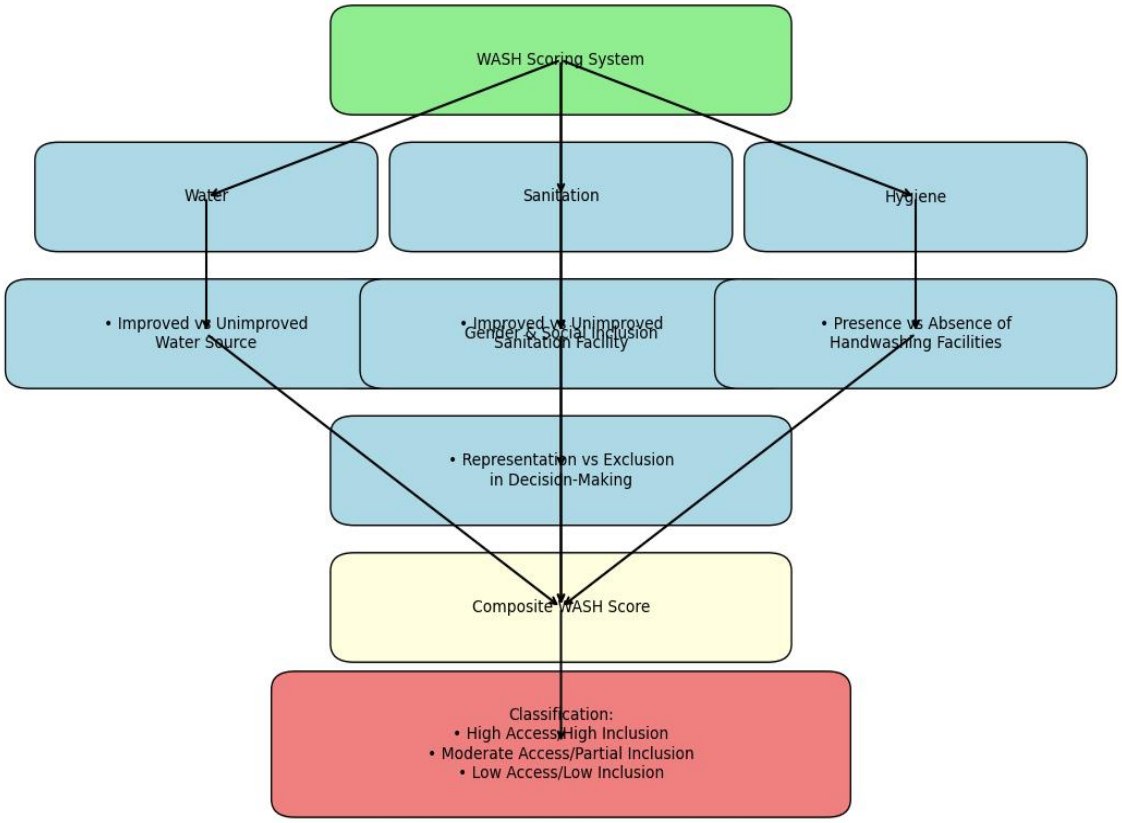


Figure A6: Visual flowchart of WASH scoring system

APPENDIX 10- FOCUSED GROUP DISCUSSION SESSION

Plate 4: A Focused Group Discussion session at Iyekogba, Oredo LGA.

APPENDIX 11- FOUCSED GROUP DISCUSSION SESSION

Plate 5: A Focused Group Discussion session at Jagbe community, Etsako West LGA.

APPENDIX 12-MASTER LIST OF SETTLEMENTS USED FOR SELECTING STUDY SETTLEMENTS.

Edo Masterlist of S... | Analytic Breakdown... | Hard to ...

	E	F	G
1		Ward	Settlement
2	-Edo	AYEGUNLE	AFEDO
3	-Edo	AYEGUNLE	AFEKEH
4	-Edo	AYEGUNLE	AGOR J.D
5	-Edo	AYEGUNLE	AGOR OGODO
6	-Edo	AYEGUNLE	AGOR UNEME
7	-Edo	AYEGUNLE	AIYETEJU
8	-Edo	AYEGUNLE	AIYEZAWA
9	-Edo	AYEGUNLE	ARAROMI
10	-Edo	AYEGUNLE	ASHESHEBO
11	-Edo	AYEGUNLE	AZO
12	-Edo	AYEGUNLE	BOBODU
13	-Edo	AYEGUNLE	BOLODURO
14	-Edo	AYEGUNLE	EGBOGBANA
15	-Edo	AYEGUNLE	EKPANABA
16	-Edo	AYEGUNLE	ELECHI
17	-Edo	AYEGUNLE	ELODI
18	-Edo	AYEGUNLE	ELUKA
19	-Edo	AYEGUNLE	EPERE
20	-Edo	AYEGUNLE	FULANI CAMP
21	-Edo	AYEGUNLE	FULANI CAMPS
22	-Edo	AYEGUNLE	IBINEFIA
23	-Edo	AYEGUNLE	IBINODO
24	-Edo	AYEGUNLE	IGBEBURE
25	-Edo	AYEGUNLE	IGBIRA CAMP
26	-Edo	AYEGUNLE	IGBO CAMP
27	-Edo	AYEGUNLE	IKO
28	-Edo	AYEGUNLE	IKPISHONU
29	-Edo	AYEGUNLE	ILETEJU

Edo Masterli...ent 2025 (7)

Edo Masterlist of S... | Analytic Breakdown... | Hard to ...

	A	B	C	D
1	MID	UniqueRec	SecurityComp	State
2	1	EdoAkoko-Ed	N	Edo
3	2	EdoAkoko-Ed	N	Edo
4	3	EdoAkoko-Ed	N	Edo
5	4	EdoAkoko-Ed	N	Edo
6	5	EdoAkoko-Ed	N	Edo
7	6	EdoAkoko-Ed	N	Edo
8	7	EdoAkoko-Ed	N	Edo
9	8	EdoAkoko-Ed	N	Edo
10	9	EdoAkoko-Ed	N	Edo
11	10	EdoAkoko-Ed	N	Edo
12	11	EdoAkoko-Ed	N	Edo
13	12	EdoAkoko-Ed	N	Edo
14	13	EdoAkoko-Ed	N	Edo
15	14	EdoAkoko-Ed	N	Edo
16	15	EdoAkoko-Ed	N	Edo
17	16	EdoAkoko-Ed	N	Edo
18	17	EdoAkoko-Ed	N	Edo
19	18	EdoAkoko-Ed	N	Edo
20	19	EdoAkoko-Ed	Y	Edo
21	20	EdoAkoko-Ed	Y	Edo
22	21	EdoAkoko-Ed	Y	Edo
23	22	EdoAkoko-Ed	Y	Edo
24	23	EdoAkoko-Ed	N	Edo
25	24	EdoAkoko-Ed	Y	Edo
26	25	EdoAkoko-Ed	Y	Edo
27	26	EdoAkoko-Ed	N	Edo
28	27	EdoAkoko-Ed	N	Edo

Figure A7: Snapshots of Edo State master list of settlements/ communities.