

A Gendered Mitigation Measures to Exclusion from On-Site Sanitation Services in George Compound in Lusaka Zambia: A Hermeneutic Phenomenological Approach

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ABSTRACT

The study purpose was to explore Gender exclusion in on-site sanitation among stakeholders in George compound one of the Peri-Urban Areas in Lusaka. The study was anchored on the interpretive phenomenology paradigm and viewed reality from a relativist ontology that believes in multiple realities. Scotland (2012) asserts that reality is relative to how individuals experience it at any given time and place. According to Scotland (2012), ontology is defined as a branch of philosophy concerned with the assumptions we make to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating. The researcher adopted a subjective epistemological stance through dialogical interaction with the participants to create meaning. Axiologically, the researcher was aware of his experiences and background which was used as asset in the creation of meaning. The researcher analysed data using a reflexive thematic analysis was used to analyse in-depth and key informant interviews with beneficiaries, local committees, regulatory bodies, and the Lusaka Water Supply and Sanitation Company. The sample was selected using a criterion purposive sampling and determined using data saturation, ensuring rich, contextual insights from relevant stakeholders. The study revealed that men are often away from home, which complicates household decision-making, particularly regarding financial matters related to sanitation. This irregular participation hinders effective sanitation decisions making, as men are less aware of the impacts of inadequate toilet facilities. Furthermore, the Lusaka Water Supply and Sanitation Company (LWSC) should consider mainstreaming women's specific needs, particularly regarding access to water for toilet use, especially during menstruation. Finally, the study uncovered that that many of the newly constructed toilets have shallow pits, leading to rapid filling and increased burden on women, who are primarily responsible for household sanitation. The study has both practical and policy implications. Practically, the study informs the service providers for continuous engagement of all stakeholders particularly the women. This is because the sanitation system has been traditionally patriarchal (male slant) thus leaving out women more prone to poor sanitation vulnerabilities. Therefore, policy makers need to rethink sanitation approaches that deliberately targets women during design stage and thus develop robust programmes for raising awareness and education to all the water and sanitation utility companies. In conclusion, addressing sanitation challenges in peri-urban Lusaka requires a holistic, systems-oriented approach that integrates infrastructure, regulation, education, cultural socialization, and community participation to ensure equitable, sustainable, and effective onsite sanitation services. The study explored a gendered response to exclusion challenges in the realm of the on-site sanitation services among stakeholders in George compound, Lusaka, Zambia.

Keywords: Gendered Mitigation Measures, On-Site Sanitation, Gender Education.

INTRODUCTION

This section presents the introduction, study background and study objective. The main objective was to explore stakeholders perceived response gendered exclusion in on-site sanitation in Lusaka, Zambia.

Background of the Study

Globally, Water and sanitation services are critical to protecting public health. They are also recognized human rights under international law (UNGA, 2010). Ensuring effective delivery of these services is one of the most

basic responsibilities of any government leading to social and economic benefits to the population of their countries. However, as the international monitoring data shows, the world has a long way to go to ensure everyone gets access to safe services. (Howard, 2021). Despite governments' commitment to the United Nations Sustainable Development Goals (SDGs) and the African Union's Agenda 2063, most countries are not on track to meet their objective of ensuring the availability and sustainable management of water and sanitation for all. (United Nations, 2015). Sanitation is a pressing health problem that adversely impacts billions of people around the world. In 2015, over 2.3 billion people all over the world still lacked basic sanitation service, 844 million people still lacked basic drinking water while only two out of five people using safely managed sanitation services (Kivunja and Kuyini, 2017). According to the World Health Organization (WHO), the population of those who do not have basic sanitation facilities such as toilets or latrines is around two billion. Sustainable Development goal 6 (SDG6) is to ensure the availability and sustainable management of safe water and sanitation for all by 2030. The water and sanitation goals are defined by 8 targets that specify the goals, and the progress towards the 2030 Agenda for sustainable development is measured with 11 indicators as metrics by which the world aims to track whether these targets are achieved, (Rajapakse et al., 2023). Most of the research took place in developed countries, especially the United States of America, although sanitation problems are more serious in developing countries. (Zhou et al., 2018). According to Srivastava and Mishra, (2022) "global sanitation crisis" the population of those who do not have basic sanitation facilities such as toilets or latrines is around two billion. Most alarmingly, inadequate sanitation results into negative health consequences particularly among children which attests to interlinkages between sanitation, health, and hygiene and "burden of diseases" exemplified through disability-adjusted life years or DALYs.

Globally, an estimated 3.4 billion people or 45% of the population used safely managed sanitation services in 2017. However, data availability is limited, and national estimates were only available for 96 countries, representing 54% of global population. Furthermore, while many countries had national data on treatment of wastewater from households connected to sewers, very few had data on treatment and disposal of waste from onsite facilities. (UNICEF and WHO, 2019). This remains the single biggest data gap for global monitoring of the SDG sanitation target (Bain et al., 2018). Other areas where there is missing or poor-quality data include sanitation system typologies, emptying practices in both urban and rural areas, and the ability to assess the magnitude of the faecal exposure risks associated with the appropriate management of such on-site systems. There are further data gaps around the influence of weather conditions on on-site sanitation management, which are altered further by climate change (World Health Organization, 2018), knowledge of these impacts is limited to small scale study areas. (Frenoux, C. and Tsitsikalis, A., 2015).

After decades promoting sanitation in low and middle-income countries, several countries and the global sanitation community have come to realize that it is time to rethink the approach to accelerating access to quality services. Since 2000, the WHO/UNICEF Joint Monitoring Programme of the Millennium Development Goals (MDGs) has consistently reported that the share of the population in low and middle-income countries that use pit latrines, septic tanks and systems termed as 'unimproved' sanitation facilities is growing. (NWASCO, 2018).

It is now estimated that between 2.1 and 2.6 billion people in low and middle-income countries rely on onsite technologies that produce tons of untreated Faecal Sludge (FS) every day. When septic tanks and pit latrines become full, the sludge that is collected from them is largely discharged untreated into open drains, irrigation fields, open lands or surface waters. The amount of untreated FS discharged into the open environment poses serious public health risk. A 5m³ truckload of FS dumped into the environment is the equivalent of 5,000 people practicing open defecation. Adding to this is the heavy load from raw faeces excreted in the open by an additional 1.1 billion people who still do not have access to any toilet. (NWASCO, 2018).

The consequences of this waste entering the environment are staggering. The World Bank estimates that poor sanitation costs the world 260 billion USD annually. Poor sanitation contributes to 1.5 million child deaths from diarrhea each year. Chronic diarrhea hinders child development by impeding the absorption of essential nutrients that are critical to the development of the mind, body and immune system. It can also impede the absorption of life-saving vaccines (NWASCO, 2018).

Regionally, Safe water and sanitation are essential to the health of all Africans as well as to the social and

economic development of their countries, yet millions lack access to both. (World Health Organization, 2023). The study is anchored on the agenda 2063 whose aspiration is that Africa shall have equitable and sustainable use and management of water resources for socio-economic development, regional cooperation and the environment (*Agenda 2063*, 2015). Moreover, access to proper sanitation is still elusive in many parts of Africa while significant improvement in global sanitation has been realized that the sanitation situation in Africa is still appalling with almost 20% of the population reported to still practice open defecation in Sub Saharan Africa. The impacts of poor sanitation systems range from negatively impacting natural resources water quality, to causing health risks to the populations involved. Obviously, the current sanitation systems have gaps and can barely help the situation, which points to the necessity of a paradigm shift in the wastewater management to include interventions that would make proper sanitation achievable for all. Such interventions include decentralization and resource recovery, which will not only produce environmentally acceptable effluents, but are also pertinent in achieving decreased costs for sanitation systems, hence making them more affordable, (Nansubuga et al., 2016). According to the 2023 Africa Sustainable Development Report, 411 million Africans still lack access to safe water, and almost three-fourths don't benefit from safely managed sanitation services. (United Nations Development Programme, 2023).

Nationally, The National Water Supply and Sanitation Council (NWASCO) reports that one of the greatest challenges facing water and sanitation supply utilities in Zambia is poor infrastructure development and maintenance. Inadequate water and sanitation infrastructure is mainly due to low financial investments in the sector, with an annual allocation of less than 3% of the national budget. According to NWASCO, the investments have been skewed towards water supply as opposed to sanitation and this situation has been compounded by lack of a clear policy on sanitation issues. Subsequently, Zambia has developed a comprehensive policy to guide the development and management of sanitation and water sectors. The specific policy measures for rural water supply and sanitation include a community-based approach; the promotion of appropriate technology; and capacity building at all levels. (*National Rural Water Supply and Sanitation Program*, 2006).

Zambia is no exception to the need to accelerate the provision of adequate and safe sanitation. The country's Vision 2030 states that universal coverage of both water supply and sanitation services should be achieved. A study conducted by Kivunja and Kuyini, (2017), revealed that despite the various measures taken, Zambia with improved sanitation coverage of 44%, was not able to reach Millennium Development Goal (MDG) 7c for water and sanitation (halving the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015. Similarly, another study conducted by United Nations, (2018) disclosed that access to water supply and sanitation (WSS) services remains stubbornly low in Zambia. As of 2017, about 67 percent of Zambians had access to an improved water source, and only about 44 percent had access to an improved sanitation facility. However, there are disparities between rural and urban. Access to improved water in rural areas is at 51 percent, whereas urban is 89 percent. Sanitation access in rural areas is at 19 percent, whereas urban is 49 percent.

A study conducted by United Nations, (2018) disclosed that approximately 19 percent of Zambians practice open defecation. Zambia is one of the countries that missed the Millennium Development Goals (MDGs) on access to water and sanitation and is on track to miss the more ambitious Sustainable Development Goals (SDGs). Access rates have remained almost stagnant over the past 15 years. Even where there is access, the quality of service is poor, especially in small rural towns and peri urban areas. Households receive an average of 16 hours of water supply per day, 6 percent of water samples in urban areas fail bacteriological tests, and sanitation and sewer collection and treatment remain poor. Further, the vision 2030, underscored that, access to clean and safe water by most Zambians remains a challenge. At the national level about 52 percent of households had access to clean and safe water supply in 1990 while in 2000, the percentage had increased to 64, but it dropped to 57 percent in 2003. Accessibility has been higher in urban areas at 88 percent in 1990 and 2000 compared to 28 percent and 48 percent in rural areas in the respective years. In 2004, access to safe water supplies was estimated at 86 percent of the population in urban areas and 37 percent of the population in rural areas. In the peri-urban areas, where 50-70 percent of the urban-population live, water supply and sanitation services are poor, inadequate and unreliable. By 1990, 63 percent of the population had access to improved sanitation facilities, increasing to 78 percent in 2000. Accessibility has been higher in urban areas at 86 percent and 99 percent, compared to 48 percent and 64 percent in rural areas in 1990 and 2000 respectively. (GRZ, 2006). Water and sanitation infrastructure

(WSS), which was primarily built to cater to a small sub-sector of developing city populations, is increasingly coming under excessive strain. In the rapidly growing cities of the developing world, infrastructure expansion does not always keep pace with population demand, leading to waterborne diseases such as cholera (*Vibrio cholerae*) and typhoid (*Salmonella* serotype *Typhi*) ((Gething et al., 2023)).

Moreover, about sanitation, the percentage of households with access to an improved sanitation facility at national level increased to 54.4 percent in 2018 from 35.5 percent in 2007. The improvement was attributed to consistent public sector investments in water and sanitation, coupled with support from cooperating and development partners. Despite the gains made in improving access to water and sanitation in urban areas, the increase in unplanned settlements were a major drawback on Government efforts to provide safe water and adequate sanitation. There is, therefore, need to improve town and country planning and implement decentralization that will entrench participatory planning with communities in various constituencies and wards, (GRZ, 2022).

The practices indicate that NWASCO is regulating sanitation service provision only through sewerage systems and not onsite sanitation, while ZEMA licenses the exhauster trucks and the construction and operation of wastewater treatment plants. The Zambia Environmental Management Agency (ZEMA) regulates onsite sanitation for environmental protection purposes; however, the provision of onsite sanitation services is not regulated. Sanitation service provision tools such as service level guarantees and agreements between the regulator NWASCO and the commercial utilities (CUs), which were created to provide urban WSS services, do not include onsite sanitation and faecal sludge management. ZEMA has developed effluent standards, but faecal sludge standards are not in place. ZEMA does not regulate community emptying either. Unsafe emptying of pit latrines, especially in peri-urban areas, results in public health risk and potential environmental pollution. Existing building codes are outdated and require updating. (NWASCO, 2018).

The Zambia Water and Sanitation Act No. 28 of 1997 establishes onsite and offsite sanitation as a service under the responsibility of Water and Sanitation Utilities and regulated by NWASCO. However, the Act did not provide sufficient clarity on the roles and responsibilities of all the relevant actors across the sanitation chain. Other issues that lacked comprehensive guidance and/or provision for regulation included: Standards on the types of onsite sanitation systems allowed within a given jurisdiction, Use of onsite sanitation systems and emptying frequency, offloading of faecal sludge at treatment sites and management of transfer stations and offloading bays, Treatment, re-use, and disposal of faecal sludge, Powers of authorized officers and penalties for incompliance. (SNV, 2024).

Foreseen obligations for sanitation systems owners include the specification of the sanitation system planned within new construction permits requests, which is to be approved by LA. For existing buildings, the established sanitation system will go through an inspection and approval process from LA. All households will have to comply, within a certain period, with the standards prescribed by LA. Further, the household owner will proceed with the safe emptying of the facility within the time threshold set by the LA. When the number of users exceeds the limit determined by the Regulation, the owner of the household is required to notify the LA that shall specify the remedial measures to be taken if necessary. Owners will have to ensure that their containments have a provision for emptying without the utility or a service provider resorting to breaking any part of the toilet or any other structure surrounding the containment. (SNV, 2024).

Water and Sanitation Utilities are already fully responsible for the provision of faecal sludge management (FSM) services, though they may, with the approval of the Council, enter into agreements with service providers for this end. It is anticipated that the strengthened regulations will enable the Commercial Utility to apply a fine to sanitation systems owners that dispose of unsuitable materials such as solid waste into their containments. The strengthened regulations will also determine the methods and reuse products that can be generated from faecal sludge, and establish the related product standards, testing procedures and reporting mechanisms to the competent Government Agencies. (SNV, 2024).

STUDY METHODOLOGY

Research Paradigm

The study was anchored on social constructivist paradigm and viewed reality from a relativist ontology who

believes in multiple realities. Scotland, (2012), asserts that reality is relative to how individuals experience it at any given time and place. According to Scotland, (2012), ontology is defined as a branch of philosophy concerned with the assumptions, we make to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating. Further, (Scotland, 2012). Therefore, collaborating with the above definition, the researcher studied reality by integrating multiple perspectives. Moreover, in terms of epistemology, the researcher adopted a subjective epistemological stance in which knowledge is generated through the researcher's personal experiences and interaction with participants. (Kivunja & Kuyini, 2017). Using this epistemological stance, the researcher generated knowledge through co-construction and interpreting meaning from the participants' experiences.

Further, the researcher adopted a value bound axiological stance hence acknowledging that once positionality in terms of personal background, experience, values and beliefs influenced the study while prioritizing ethical considerations. Kivunja & Kuyini, (2017) defines axiology as the ethical issues that need to be considered when planning a research proposal. Given the nature of the study approach adopted, the research was value bound, hence was part of what was being researched, and could not be separated. (Saunders et al., 2009). Therefore, positionality in this study, helped in integrating the researchers' beliefs and experiences in the co-construction of meaning during the study. Lastly, the researcher deployed a methodology stance which covered the research approaches, designs, methods and procedures used in an investigation that is well planned to find out something. (Keeves, 1997). The inductive reasoning is a logical process in which multiple premises, believed true or found true most of the time, are combined to obtain a specific conclusion or to supply evidence for the truth of conclusion. (Sauce & Matzel, 2017). The researcher applied inductive logic in data collection and data analysis by reasoning from the specific that were participants sampled to the general study area.

The Research Design

The researcher adopted the exploratory case study to gain in-depth insights about sanitation by focusing on a single case Gerring, (2004), emphasises that a case study is an intensive study of a single unit for understanding a larger class of (similar) units where the unit connotes a spatially bounded phenomenon observed at a single point in time or over some delimited period. According to Cresswell (2007), a case study is a good approach when the inquirer has identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases.

Sampling, Location, Population and Procedure

Study Location

The study was conducted in George Compound one of the Peri Urban areas located West of Lusaka. The study area was selected premised on the Sanitation Programmes interventions which were implemented there by the government of Zambia through the Lusaka Sanitation Program.

The Study Population

The study population is defined as a set of cases, determined, limited, and accessible, that constituted the subjects for the selection of the sample, and must fulfill several characteristics and distinct criteria, (Arias-Gómez et al., 2016). The study population comprised the beneficiaries of sanitation programmes, the Ward Development Committee, the water and Sanitation Committee, the Lusaka City Council (Public Health Department), Zambia Environmental Management Agency (Inspectorate), National Water Supply and Sanitation Council, and Lusaka Water Supply and Sanitation Company- (Peri-Urban Department). The Population was selected based on the participants experiences working on the sanitation programmes in the Peri-Urban areas.

The Study Sample Size

The researcher adopted a qualitative research approach in which the sample size was determined based on the principle of data saturation. Suri, (2011), notes that data saturation is associated with the situation when a further collection of data provides little in terms of 'further themes, insights, perspectives or information'. Therefore, the

researcher determined sample size after conducting interviews with 29 Participants (10 Males and 15 women) and 4 key informants.

Sampling Procedure

The Purposive Sampling is intentional selection of informants based on their ability to elucidate a specific theme, concept, or phenomenon, (Robinson, 2014). Furthermore, the researcher employed criterion-based purposive sampling in this study. This type of sampling calls for the researcher to set a specific criterion which should be followed for participants to take part in the study. These participants were handpicked for such reasons because the criterion is set to enable the relevant data to be collected, (Haruna, 2023). The researcher selected samples from the participants who have experienced and benefited from the sanitation Programmes that were implemented by the government for the past Ten years. The government stakeholders were selected based on their experience implementing sanitation programmes in the study areas. The selected study participants comprised, the beneficiaries of sanitation programmes, the Ward Development Committee, the water and Sanitation Committee, the Lusaka City Council (Public Health Department), Zambia Environmental Management Agency (Inspectorate), National Water Supply and Sanitation Council, and Lusaka Water Supply and Sanitation Company- (Peri-Urban Department).

Data Collection Instruments

The collection of primary raw data from the field was based on the deployment of the Key Informant Interviews targeting government officials and Community Opinion Leaders and the In-Depth Interviews targeting the sanitation programmes beneficiaries.

Key Informant Interviews

The researcher deployed the key informants Interviews based on its quality to conduct intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program, or situation. This choice of data-collecting tool is appropriate for open-ended questions for a qualitative study that the researcher intends to use. The Key Informant Interviews (KII) are a valuable qualitative research method aimed at collecting in depth insights and viewpoints from individuals who possess specialized expertise in a particular field. This method involves conducting one-on-one interviews with key informants to gain a comprehensive understanding of their knowledge, experiences, and perspectives, thus providing valuable qualitative data for research and analysis, (Akhter, 2022). The researcher deployed this method targeting the government officials and community leaders based on their experience working in the sector or experiencing the sanitation programme interventions in the study area.

In-Depth Interviews

The researcher deployed in-depth Interviews in generating qualitative data. The in-depth interviews can be quite unpredictable and varied and are well suited to exploratory research and other research interested in meaning and experiences, (Osborne & Grant-Smith, 2021). The Data collection instrument is suited for this study as it leans on gathering sanitation beneficiaries lived experiences in unrestricted manner as opposed to structures instruments which restrict participants responses.

Data Collection Procedures

The researcher deployed the self-administer interviews in the field to elicit for the participant's views and experiences. The interviews were conducted either English or translated into local language spoken by the participant. The study participants to be interviewed were selected using the criterion purposive sampling. The interviews duration lasted between 50 to 60 minutes. Data Collection devises such as audio-recording were used after obtaining consent from the study participants.

Data Analysis

The researcher analysed raw data manually using a reflexive thematic analytical research approach. According to (Kiger & Varpio, 2020) defines Thematic Analysis is an appropriate method of analysis for seeking to understand experiences, thoughts, or behaviours across a data set, themes are actively constructed patterns (or meanings) derived from a data set that answer a research question, as opposed to mere summaries or categorizations of codes. The study adopted Braun and Clarke framework for conducting thematic analysis which involves a six-step process namely data familiarization, generating initial codes, themes identification, reviewing themes, defining and naming themes, and producing the report, (Kiger & Varpio, 2020). The above themes helped in building patterns for interpreting the study findings in line with the study objectives and study purpose.

The Study Trustworthiness

The researcher achieved rigor by employing trustworthiness which according to Lincoln and Guba relied on four general criteria in their approach to trustworthiness. These are credibility, transferability, dependability, and confirmability. (Ahmed, 2024). The researcher achieved credibility of the study findings by building trust and rapport with participants over time thus allowed the researcher to gain nuanced insights into their experiences, behaviours, and beliefs, (Ahmed, 2024). Further, the step helped in capturing rich data that might not be immediately evident during brief interactions, (Ahmed, 2024). Moreover, transferability was achieved by thoroughly describing the research context, participants, and methods allows readers to evaluate the similarities between their context and the study, enabling them to judge the applicability and relevance of findings to their own settings or situations, (Ahmed, 2024). Further, the researcher achieved dependability by thoroughly documenting each step of the research process, which helped to ensure transparency and allowed others to replicate the study or assess the dependability of the findings by following the same procedures and understanding the rationale behind decisions made (Ahmed, 2024). Further, Eryilmaz (2022) notes that creating and preserving an audit trail, which consists of a comprehensive log documenting the decisions made throughout the research process, allows other researchers to reproduce the study, therefore guaranteeing the dependability of the results. The researcher achieved confirmability by employing member checking to ensure that the verification of their viewpoints and experiences was accurately represented, thereby strengthening the confirmability of the findings by providing participants with an opportunity to validate or correct the interpretations. Further, by keeping a journal helps researchers track their evolving thoughts, biases, and reflections during the research process. This reflective practice enhances transparency and provides insights into the researcher's subjectivity, contributing to the confirmability of the findings, (Ahmed, 2024).

STUDY FINDINGS

This section presents the study findings and the participants verbatims which were coded and anonymised by initials of the study area i.e. George Compound (GC) for beneficiaries and KII for the Key informants. The collected raw data from the field employed the open-ended interview guides in which the interview scripts were analysed thematically in line with the study objectives and the research questions. The presentation of the study findings sought to answer the question on, stakeholders gendered perceived mitigation measures for on site sanitation challenges in George Compound, Lusaka, Zambia.

Gendered Response to Exclusion

Theme 1.1 Gender Participation in Decision Making

The study highlighted that men are often away from home, which complicates household decision-making, particularly regarding financial matters related to sanitation. This irregular participation hinders effective sanitation decisions, as men are less aware of the impacts of inadequate toilet facilities. A male community beneficiary suggested that addressing gender inclusion challenges could involve encouraging women to take on leadership roles and actively participate in meetings. The following is the community participants extract:

"I think it's important for women, whether educated or not, to be allowed to become chairpersons of groups. Women need to be encouraged to participate in the meetings. "Participant (GC 6).

The Lusaka Water Supply and Sanitation Company (LWSC) must consider women's specific needs, particularly regarding access to water for toilet use, especially during menstruation. One of the community beneficiaries submitted that:

"LWSC needs to seriously consider supplying water in the area because despite not supplying water, they bill us. Most of our money is spent on buying water for household use." Participant (GC 19).

Sanitation is further compromised by load-shedding, which disrupts water supply from boreholes that rely on electricity. A key informant suggested:

"There is a need to invest in solar-powered energy sources." Participant (GC 22).

Financial challenges also hinder sanitation development, with a call for payment structures that allow for instalments: One of the key informants submitted that:

"There is a need to provide part payment or pay in instalments because many beneficiaries lack initial capital. "Participant (GC 22).

Women often resort to shared pit latrines, which can lead to health issues due to poor hygiene and limited access. One of the key informants noted:

"Poor sanitation can lead to vaginal infections or urinary tract infections, which affect women more due to their biological makeup. Women fear to rehydrate because they don't have access to toilets, leading to health risks." Participant (GC 22).

To improve access, flexible payment plans for constructing toilets were suggested. One of the community beneficiaries expressed that:

"I think the plan of payment should be made flexible to allow many men and women to construct the toilets. "Participant (GC 19).

Theme: 1.3 Gendered Design Challenges

The study highlighted that many of the newly constructed toilets have shallow pits, leading to rapid filling and increased burden on women, who are primarily responsible for household sanitation. A female community beneficiary, aged 37, asserts that:

"The new toilets that were constructed face the challenge of shallow pits, which makes them fill up fast. "Participant (GC6).

This feedback indicates a need for more thoughtful design and construction practices to ensure the longevity and usability of sanitation facilities. A male community beneficiary expressed frustration, noting that the shallow design and poor planning have discouraged some community members from participating in the project:

"To my side, the toilets that were constructed are not deep, hence they fill up fast. There is also no clear access due to poor demarcation and planning." Participant (GC 6).

Theme: 1.4 Lack of Landlord Involvement

The engagement of absentee landlords, both men and women, is crucial for promoting gender inclusion and participation in sanitation development projects. A key informant disclosed that:

"Both male or female absentee landlords should be engaged in the project to constructs toilets, this would help to enhance gender inclusion and participation." Participant (GC 11).

Theme: 1.5 Life-long Education and Curriculum Development

Cultural vices that hinder inclusion in sanitation development projects cannot be effectively addressed through a one-time effort; instead, there is a need for systemic change, particularly in education. A key informant noted:

"Cultural challenges cannot be corrected in a one-off effort. There is need to look at our education system. We need to engage with schools so that some of the cultural vices can be addressed." Participant (GC 11).

Lack of education significantly impacts gender inclusion, as many individuals, especially women, are often deemed unable to contribute to discussions due to perceived illiteracy.

This results in their "Lack of education does affect inclusion because for gender inclusion to happen, there is a need for understanding gender inclusion. Most of the time, people pass comments that women are illiterate and can't understand what is being discussed, hence they are excluded." Participant (GC 11).

The study established that changing poor sanitation practices requires a shift in mindset, ideally starting with children. A focus on education and awareness can transform community attitudes over time. Addressing the high illiteracy levels, particularly among women in peri-urban areas, is essential for enhancing participation and inclusion in sanitation initiatives. Another key informant emphasized:

"I think our biggest challenge is mindset, we need to change through awareness raising to both men and women. There is a need to change the young ones for future benefits through the education curriculum." Participant (GC 11).

Theme: 1.6 Life-long Education and Curriculum Development

The study disclosed that, human rights approach, not only foster awareness of rights but also equips community members with the skills necessary to engage with duty bearers and hold them accountable for providing adequate sanitation facilities. One of the key informants highlighted that adopting a human rights approach is essential for addressing gender discrimination in toilet construction. This approach empowers both men and women to advocate for their sanitation needs effectively. One of the key informants expressed that:

"One of the strategies used to address gender discrimination is a human rights-based approach. There is a need to build capacity in men and women so that they can demand their sanitation rights." Participant (GC 22).

Advocacy for Gender Rights

The study disclosed that, human rights approach, not only foster awareness of rights but also equips community members with the skills necessary to engage with duty bearers and hold them accountable for providing adequate sanitation facilities. One of the key informants highlighted that adopting a human rights approach is essential for

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DISCUSSION OF FINDINGS

Gendered Design Challenges

The study revealed that many newly constructed toilets in peri-urban areas have shallow pits, which fill rapidly and place a disproportionate burden on women, who are primarily responsible for household sanitation management. This design flaw not only increases the frequency of pit emptying but also discourages proper use and maintenance, reducing the effectiveness of sanitation interventions. Participants highlighted that poor planning and inadequate design negatively affect community engagement and ownership. A male community beneficiary expressed frustration, noting that the shallow design and lack of thoughtful planning have discouraged some residents from participating in the sanitation project. These findings underscore the need for more careful consideration of environmental and household factors when designing sanitation facilities, including pit depth, durability, accessibility, and space constraints. This aligns with reviewed literature, which emphasizes that substandard pit latrine design in high-density or peri-urban settlements contributes to rapid fill-up, increased maintenance costs, and limited sustainability of sanitation services (Kennedy-Walker et al., 2015). Thoughtful design and adherence to minimum construction standards can improve the longevity of facilities, reduce operational burdens, and enhance community participation in sanitation programs. Thus, addressing environmental and design challenges is crucial for the sustainability and usability of on-site sanitation facilities. Proper planning, community involvement, and adherence to construction standards can mitigate the rapid filling of pits and promote long-term improvements in sanitation practices.

Life-long Education and Curriculum Development

The study revealed that while sanitation laws exist and are generally adequate, compliance at the community level remains a critical challenge. Key informants emphasized that enforcement alone is insufficient, noting that even employing many inspectors cannot ensure improved sanitation outcomes if households do not understand or follow the laws. According to one key informant, "even if you employ a hundred inspectors, sanitation starts at the household level," highlighting the importance of individual and collective responsibility in maintaining hygiene standards. This finding aligns with literature emphasizing the role of education and awareness in effective sanitation management. According to Cairncross and Valdmanis (2006), laws and regulations are only as effective as the public's knowledge of, and willingness to comply with, them. Behavioural change, household-level hygiene practices, and community engagement are therefore essential complements to formal enforcement mechanisms. Without these educational interventions, regulatory efforts may have limited impact, particularly in peri-urban areas where households face competing priorities and limited resources. The study underscores the need to integrate education, awareness campaigns, and community engagement into sanitation programs. Fostering understanding of health risks, proper toilet usage, and maintenance responsibilities can enhance compliance, reduce the burden on enforcement agencies, and promote sustainable sanitation practices across communities. The study further revealed that education and sensitisation are critical for improving compliance with on-site sanitation services in peri-urban areas. Participants emphasized that raising awareness on sanitation laws and practices cannot be achieved by working in isolation; political leaders and local policymakers should be actively involved in advocacy and community sensitisation efforts. Engaging politicians can help amplify messages about the importance of sanitation, encourage community buy-in, and ensure that interventions reach a wider audience.

The study further highlighted that awareness of existing sanitation laws among stakeholders is generally low, which limits the effectiveness of regulatory enforcement. Education, therefore, is a key tool for addressing this gap, not only informing households about their responsibilities but also promoting behavioural change that

supports sustainable sanitation practices. This aligns with global findings that sensitisation and community engagement are essential components of successful sanitation programs, as legal frameworks alone are insufficient to drive compliance (Cairncross & Valdmanis, 2006). In conclusion, integrating education and political support into sanitation initiatives strengthens the overall impact of interventions. By combining awareness-raising with legislative enforcement and community engagement, stakeholders can enhance the uptake of on-site sanitation services, reduce health risks, and promote sustainable hygiene practices across peri-urban communities. Moreover, the study revealed that effective communication and the use of educational materials are essential for improving the uptake and sustainability of on-site sanitation services in peri-urban areas. Participants emphasized the importance of intensifying communication efforts and ensuring continuous feedback from both beneficiaries and service providers. Engaging communities through clear, culturally appropriate educational materials not only informs households about proper sanitation practices but also fosters collaboration and accountability between service providers and residents. The study further highlighted that sanitation is a capital-intensive intervention requiring substantial financial investment. In peri-urban areas where housing is often unplanned, implementing sanitation projects can present additional challenges. For instance, new infrastructure may necessitate adjustments to existing housing, potentially leading to the demolition of some structures and requiring compensation for affected residents. Coordinating closely with local authorities is therefore crucial to navigate these complex settlement patterns, ensure compliance with planning regulations, and avoid conflicts with households. This finding aligns with global evidence emphasizing the role of communication in sanitation projects. According to WaterAid (2018), well-designed education materials, combined with community engagement and feedback mechanisms, improve acceptance, proper usage, and maintenance of sanitation facilities. Integrating communication strategies with technical planning and regulatory compliance ensures that sanitation interventions are both effective and socially sustainable.

Sanitation and Education Curriculum

The study revealed that cultural and educational barriers significantly hinder inclusion in sanitation development projects. One-time interventions are insufficient to address entrenched practices and social norms; instead, systemic change through education is necessary. Lack of education particularly affects gender inclusion, as women are often perceived as illiterate and, as a result, excluded from discussions and decision-making forums. This exclusion perpetuates biased outcomes, with sanitation decisions disproportionately favouring men and neglecting the needs of women. The study revealed that early cultural socialisation plays a critical role in shaping sanitation behaviours and compliance among community members. Key informants emphasized that embedding sanitation practices into cultural norms from an early age helps stakeholders understand the importance of hygiene and fosters long-term adherence to sanitation regulations. By normalizing proper sanitation within the community's social fabric, households and service providers are more likely to comply voluntarily, reducing the need for strict enforcement measures. This finding aligns with global sanitation literature, which highlights that cultural values, habits, and social norms strongly influence hygiene behaviour (Sommer et al., 2015). When sanitation is integrated into everyday practices and reinforced through socialisation, both adults and children are more likely to adopt and sustain safe sanitation habits. Early engagement in schools, community clubs, and family settings can therefore establish lifelong practices that support environmental health, safe faecal sludge management, and overall public well-being. In conclusion, strengthening cultural socialisation around sanitation is a strategic approach to complement regulatory frameworks and education programs. By fostering a culture that values hygiene and sanitation, communities can achieve greater compliance and sustain long-term improvements in on-site sanitation services. Participants emphasized that shifting poor sanitation practices requires a mindset change that ideally begins with children. Integrating sanitation education into school curricula and community awareness programs can help transform attitudes over time, fostering more equitable participation. Addressing high illiteracy levels among women in peri-urban areas is particularly critical for empowering them to engage meaningfully in sanitation initiatives. This finding aligns with global evidence highlighting that education is central to achieving inclusive sanitation outcomes. According to Cairncross and Valdmanis (2006), community education and awareness initiatives improve participation, promote gender equity, and support sustainable sanitation behaviours. In the context of peri-urban settlements, systematically embedding sanitation education into curricula and community programs can enhance long-term compliance, ownership, and equitable access to sanitation facilities.

Advocacy for Gender Rights

The study revealed that adopting a human rights approach to sanitation is an effective strategy for promoting awareness, participation, and accountability in peri-urban communities. Key informants emphasized that this approach equips community members with the knowledge and skills necessary to engage with duty bearers, ensuring that sanitation services meet their needs and comply with established standards. Participants highlighted that a human rights perspective is particularly important for addressing gender disparities in sanitation. By framing access to safe and adequate sanitation as a fundamental right, both men and women are empowered to advocate for equitable facilities, participate in decision-making, and hold service providers accountable. One key informant stated that adopting a human rights approach is essential for addressing gender discrimination in toilet construction, ensuring that facilities meet the specific needs of all users. This finding aligns with global evidence, which indicates that applying a human rights framework in sanitation programs enhances community empowerment, fosters gender equality, and strengthens accountability mechanisms (UNICEF & WHO, 2019). Integrating human rights principles into sanitation planning and implementation encourages inclusive participation, safeguards marginalized groups and promotes sustainable access to hygiene services. Hence, adopting a human rights approach provides a strategic pathway for improving sanitation outcomes, fostering gender equity, and enabling communities to actively participate in the planning, monitoring, and maintenance of on-site sanitation facilities.

CONCLUSION AND RECOMMENDATIONS

The study's overarching purpose was to explore a gendered exclusion in on site sanitation in Lusaka. Mainstreaming implementation in household sanitation project in George compound, Lusaka and to suggest a response to the exclusion challenges of implementing Household Sanitation Project in George Compound. The study was anchored on an interpretivist philosophical paradigm which helped to gather the views of study participants in sanitation development project. The study adopted the exploratory case study to gain in-depth insights about sanitation by focusing on a single case. Gerring (2004) emphasises that a case study is an intensive study of a single unit for understanding a larger class of (similar) units where the unit connotes a spatially bounded phenomenon observed at a single point in time or over some delimited period. According to Cresswell (2007), a case study is a good approach when the inquirer has identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases.

The Purposeful sampling involves selecting information-rich cases hence, the non-probability sampling procedure with a choice of purposive sampling method was selected based on the researcher's judgement, and certain characteristics such as beneficiaries of the project sanitation products, experience working with the Lusaka Sanitation program, and/or community-based organizations located in the study. The sampling procedure was aligned to the study, purpose, objectives, and research questions. The study population is defined as a set of cases, determined, limited, and accessible, that constituted the subjects for the selection of the sample, and must fulfill several characteristics and distinct criteria (Arias-Gómez et al., 2016). The study sampled the beneficiaries of sanitation programmes, the Ward Development Committee, the Water and Sanitation Committee, the Lusaka City Council (Public Health Department), the Zambia Environmental Management Agency (Inspectorate), the National Water Supply and Sanitation Council, and the Lusaka Water Supply and Sanitation Company (Peri-Urban Department). The population was selected based on the participants' experiences working on the sanitation programmes in the peri-urban areas.

The study findings in line with the first objective revealed that poor sanitation impacts men and women differently, particularly due to women's biological vulnerabilities to infections and diseases. The second objective revealed that prior to the construction of new toilets, beneficiaries faced significant sanitation challenges, largely due to multiple users leading to long waits. Women often had to ask neighbours to use their toilets, which resulted in feelings of shame and disrespect, as they were advised to request their landlords to provide proper facilities. Objective three, the study revealed that Lusaka Water Supply and Sanitation Company (LWSC), must ensure that there is access to adequate water supply in the constructed Households Sanitation Facilities because insufficient water availability in toilets disproportionately affects women, especially during menstruation.

The study was significant because it might contribute to the existing growing body of knowledge in the field of Gender Inclusion in sanitation development projects. The study was novel as it looked at the concept of gender inclusion in the context of household sanitation development, in the George Compound in Lusaka District. The gender experiences in sanitation construction were shared by the community beneficiaries, and the findings might inform the Lusaka Sanitation's Programs Future gender inclusion in water and sanitation projects. The study might inform stakeholders such as the Ministry of Water Development, NGOs dealing with WASH programmes, and students undertaking gender Inclusion studies in the sector. Moreover, water supply was erratic and the opening hours, long queues affected the women who had the primary responsibility of managing household water supply, sanitation and health. The study concluded that both men and women participated in the construction the operationalization of the toilets. However, women were more engaged and concerned about toilet construction and management than men due to their role in caring for the family. Conversely, men's involvement was mainly seen in the paying for the toilets, use, repairs work and buying of the toilet cleaning chemicals.

Study Limitations

This study limitations were the length process of obtaining research clearance and consent was delayed due to institutional bureaucracy and slow feedback from certain offices. This had the potential to affect the data collection schedule. However, this challenge was mitigated through persistent follow-ups and timely reminders, which eventually facilitated the approval process. Furthermore, during data collection, some key informants demonstrated divided attention as they simultaneously addressed work responsibilities while participating in the interviews. This occasionally interrupted the flow of the discussion. To manage this, the researcher provided careful recaps of previous points whenever attention shifted, ensuring continuity and accurate representation of participants' perspectives. The study also employed a qualitative research design focused on exploring participants lived experiences. While this approach enabled in-depth insight and rich contextual understanding, it limits the extent to which the findings can be generalized to all peri-urban communities. Nonetheless, the depth of the findings offers valuable contribution to knowledge and provides grounded evidence relevant to similar settings. Lastly, the study was constrained by cost and time, which restricted the researcher's ability to include a larger sample or expand the geographical scope of the research. Despite these limitations, methodological rigor was maintained, and the study achieved sufficient depth and saturation to support credible and meaningful conclusions. The findings of this study have several implications for sanitation service delivery, enforcement, and community participation in peri-urban Lusaka.

Study Implication

The study has both practical and policy implication. Practically, the study informs the service providers for continuous engagement of all stakeholders particularly the women. This is because the sanitation system has male slant thus leaving women more vulnerable. Therefore, policy makers need to rethink sanitation approaches that deliberately targets women during design stage and thus develop robust programmes for raising awareness and education to all the water and sanitation utility companies. The study contributes new empirical knowledge by documenting the lived experiences, socio-cultural negotiations, and gendered infrastructural challenges inherent in implementing improved onsite sanitation in densely populated peri-urban settlements. This goes beyond existing literature that has primarily emphasized off-site sewer systems or has focused on regulatory frameworks in abstraction from on-the-ground realities. The study provides evidence that sanitation interventions must be tailored to environmental limitations such as rocky terrain and high-water tables, as well as behavioural patterns such as the tendency to dispose of solid waste in pits. By revealing how these contextual factors interact with institutional mandates and technological design, the study advances understanding of sanitation implementation in informal urban contexts.

Study Recommendations

The Government:

- i. Support lifelong education and inculcating an early entry of gender and cultural aspects into the curriculum development.

The Water and Sanitation Utility Companies

- i. Integrate toilet construction with complementary services, including reliable water supply and lighting, recognizing that inadequate lighting affects night-time safety and usage.
- ii. Installation of solar-powered lighting ensuring uninterrupted sanitation service especially during night-time.
- iii. Regular engagement of both males and females to ensure that on site sanitation technologies in the peri-urban areas are gender responsive and gender friendly.

Recommended Future Studies

1. **Longitudinal Evaluation of Sanitation Programs:** There is a need to conduct a longitudinal study to assess the long-term effectiveness, sustainability, and impact of sanitation program implementation in peri-urban areas. Such research would provide insights into program outcomes over time and identify factors that support or hinder sustained improvements in on-site sanitation.
2. **Implementation of Statutory Instruments:** Future studies should explore the implementation and effectiveness of the statutory instrument on on-site sanitation, which is currently under development. Research in this area would help evaluate the practical application of the instrument, its enforcement challenges, and its influence on household compliance, service delivery, and overall sanitation outcomes.

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Notes on Contribution

James Mwale is currently pursuing a Doctor of Philosophy Degree in Development Studies at the University of Zambia. He holds a Bachelor of Social Work, Master of Social Work and Master of Arts in Development Studies. He is also Pursuing Master of Science Degree in Public Health from the same institution. His research interests focus on the Household Sanitation Programmes Implementation in George Compound a Peri-Urban area in Lusaka, Zambia. Moreover, previously studies that were undertaken focused on: Programme, Youth Empowerment for the vulnerable youths: A case study of SOS Children's Villages, and Gender inclusion in the household sanitation programme in George compound.

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