

Sanitation Infrastructure Challenges in Old Suburbs in Ancient Cities: Experience from Zimbabwe, towards Achieving Sustainable Cities.

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ABSTRACT

The study pursued to appraise water supply, sanitation, and hygiene infrastructure in old high-density suburbs in Zimbabwe's Ancient cities. Day-in-day indicators have shown that most old suburbs in most Ancient cities are failing to provide an improved state of sanitation infrastructure and proper water supply sanitation and hygiene (WASH) to its residents towards achieving sustainable development goal 6, that of ensuring availability and sustainable management of water and sanitation for all. A case study was conducted to explore the challenges that hamper the local authorities and the central government towards the provision of adequate water supply and sanitation infrastructure to its residents in Ancient cities. The study employed the exploratory qualitative approach that focuses on the interpretive paradigm. In-depth interviews (IDs) were conducted with ten key informants' interviews (KIIs) drawn from resident committee members (RCMs 1-10) and nine members of council maintenance departments (CMDs -1-6). Four members from the engineering services department (ESDs-1-4) and two legislators (LEGs1-2) who grew up in these old high-density suburbs located in Ancient cities were purposively sampled to participate in the semi-structured face-to-face interviews. The results revealed that sanitation infrastructure challenges were attributed to, overpopulation in old suburbs that strains the aged sanitation infrastructure facilities such as sewer reticulation infrastructure that suffers from sewer pipe bursts and leaks as the pipes have outlived their lifespan. The results show that there was a mismatch between the then-installed sewer reticulation infrastructure facilities and the current population that uses the facilities to achieve sanitation and hygiene. The sanitation infrastructure has been exacerbated by a lack of regular maintenance and investment in new infrastructure. Inconsistency of no extension of funding for rehabilitation of sewer and water sanitation amenities, due to economic situation was mentioned. Despite the obvious risks, municipal responses have been slow and inadequate, and efforts to replace or repair the outdated infrastructure remain elusive despite several reports by residents. The study recommends that we decongest these residents, to achieve a healthy environment that meets public health standards.

Keywords: Sanitation, Ancient cities. Sanitation Infrastructure, Old Suburbs Sustainable Cities.

INTRODUCTION

Zimbabwe's urban areas, particularly old suburbs, face significant sanitation infrastructure challenges. These issues impact public health, environmental sustainability, and overall urban development, however great strides have been made in trying to achieve sanitation and hygiene practices across the whole country through water, sanitation, and hygiene (WASH) programs. Despite having reasonable awareness and knowledge, from its expertise (community health workers) the issues of sanitation and hygiene practices of the residents in old high-density suburbs were remarkably very low. In terms of policy implementation, little has been on the ground to address issues of sewer and reticulation infrastructure that have suffered from sewer pipe bursts and leaks that have outlived their lifespan. According to The Herald (2019), infrastructure is crumbling in old

suburbs such as Bulawayo's Makokoba, Sidojiwe flats, Mzilikazi and Luveve, Mbare and Dzivarasekwa in Harare and Mtapa in Gweru. The legislators in 2019 lobbied the government to allocate 2% of the National Budget towards rehabilitating sanitation infrastructure in old suburbs countrywide but still nothing has been done to promote the rejuvenation of this infrastructure. The city fathers lamented that changing infrastructure is a huge project that requires resources however, efforts to partner with Chinese companies have been signed to improve infrastructure (The Herald, 2020), but nothing has been done so far. Pipe bursts in these locations have created artificial rivers (flows) of sewage in streets (children's playing areas) and road networks, culverts, and even spillages into rooms of houses with low floors exposing the residents to all forms of critical public health threats. The community health workers in these suburbs warned that the conditions in these suburbs are ripe for outbreaks of waterborne diseases such as cholera. Many suburbs were developed decades ago, (Makokoba was the first city to be built in Bulawayo in 1894 and was not designed to handle the population it has today, (The Chronicle,2021), with sanitation systems that have not been upgraded or maintained. This has resulted in frequent breakdowns and inefficiencies in infrastructure. This then meant that rapid urbanization has outpaced the development of sanitation infrastructure. Most of the people in Ancient cities face challenges of dilapidated overlived infrastructures thus inhibiting advancement towards access to better sanitation facilities and presenting a major impediment towards achieving the UN's sustainable development goals (SDGs) of sanitation for all by 2030. Urbanization and rural-urban migration have created civic facilities constraints in most old suburbs in Ancient cities, as these are the places that receive most of the population from rural-urban migration. These houses in Mkokoba, Luveve, and Muzilikazi were built for bachelors (unmarried men) looking for employment opportunities. After Zimbabwe's independence in 1980, big families started to move into the small bachelors' rooms (The Chronicle,2021). This has seen big family development of about six to eight people sharing one room, and this has put a strain on the water and sewage infrastructure which explains why sewer pipe bursts are rampant in these areas (The Herald,2021). The majority of this population spends most of their time in the old suburbs due to unemployment factors thus giving maximum sanitary facilities pressure. However, little has been realized by the residents regarding sanitation and hygiene issues and practices as social amenities attention is only looked at by the maintenance department when there is an outbreak of diseases in the form of just water supply and not paying attention to dysfunctional sanitation infrastructure that is in a state of disrepair. Municipal maintenance departments rarely visit these societies except when there are maintenance issues to deblock the pipes. The study aims to understand and uncover encounters faced by these residential communities in trying to lobby for the provision of sustainable water supply sanitation and hygiene infrastructure if any in Ancient cities, as the constant sewer pipes burst exposes them to water-borne diseases.

Statement of the Problem

Concern has been raised by legislators and the communities in old suburbs in Ancient cities that the state of sanitation infrastructure needs to be revamped otherwise a worse scenario might emerge soon. Residents' call reflects that the local authority city fathers in collaboration with the central government need to replace the dilapidated water and sanitation infrastructure in old suburbs countrywide. The challenge is that the physical infrastructure, sewer, and water pipes have dilapidated and deteriorated and these bursts are now an eyesore. Immediate action is needed to prevent a major health crisis as the presence of raw sewage in residential areas is a public health emergency. This has become a major challenge that needs to be addressed as this is a threat to the health and hygiene of residents and the nation as a whole and the achievement of sustainable development goal 6 by 2030, to ensure availability and sustainable management of water and sanitation for all. The aim is to improve sustainable sanitation infrastructure that promotes good hygiene and welfare. According to both the legislators and the communities, the old suburbs' sanitation infrastructure amenities have been neglected since the colonial era because the urban council was incurring huge unsustainable costs in keeping feeble infrastructure functioning. The worrisome question is that if the situation continues to prevail in these old suburbs it's a time bomb in the event of disease outbreaks upsurge. The current study sought to establish sanitation infrastructure challenges in old suburbs in Ancient cities towards achieving sustainable cities by 2030, from the perspective of the community residents, the city council engineering services department, and policymakers.

Research Questions

This study on sanitation infrastructure challenges in old suburbs in Zimbabwe towards achieving sustainable cities is informed by the following research questions (RQs).

RQ:1 What are the challenges faced by the Zimbabwean city fathers in rejuvenating sanitation infrastructure for sustainable cities?

RQ:2 How can local authorities' city fathers and central government expedite the provision of sustainable water supply and sanitation infrastructure for its residents in old suburbs?

RQ:3 What constrains the local authorities' city fathers and central government towards the achievement of sustainable sanitation infrastructure in old high-density suburbs?

Theoretical Framework

The study on challenges encountered towards ensuring sustainable sanitation infrastructure in old high-density suburbs in Ancient cities (Bulawayo, Harare, Masvingo, and Gweru) was directed by a new framework called Integrated Behavioural Model for Sanitation and Hygiene (IBM-WASH). Robert Dreibelbis and team 1988 conducted a systematic review focusing on existing models and frameworks related to theories informing behavior change in water, sanitation, and hygiene (WASH) practices. The reviews aimed at identifying the gap and informing the development of WASH behavior change and maintenance. The model aims to improve the design and implementation of interventions that promote sustainable behavior change in WASH practices. Dreibelbis et al (2013), demonstrate an understanding of encounters that are experienced in water, sanitation, and hygiene in Ancient cities by laying a foundation for the development of the IBM WASH framework, which has served as a valuable tool for stakeholders working to address WASH-related challenges and promote a positive behavior change in communities. The IBM-WASH includes cognitive factors, social influences, environmental setting, and behavioral intentions, that are integrated, these factors provide a more holistic understanding of the barriers and facilitators that guide effective WASH practices, and guiding interventions to promote sustainable behavior change. The theoretical framework is best suited to this study in that it addresses constraints that meet better and sustainable sanitation and hygiene practices. This is influenced by limited infrastructure maintenance practices, constrained expertise, funding, and resources, and limited sanitation infrastructure facilities due to urbanization pressures in old suburbs, erratic water supply problems, and behavioral change issues regarding embracing sanitation and hygiene practices, plus a lack of property ownership mindset.

LITERATURE REVIEW

Zimbabwe's urban old suburbs in Ancient cities are constrained under the confinement of overpopulation amidst the dilapidated sanitation infrastructure that is characterized by relentless poor service delivery. The aging and inadequate sanitation infrastructure in the old suburbs of Bulawayo and Harare among other Ancient cities is a challenge that local authorities need to address. Lack of maintenance due to limited budgets and resources impedes city councils from maintaining and upgrading sanitation infrastructure in these older areas that have deteriorated over time. Apart from the central government and the local authorities' failure to rehabilitate sanitation infrastructure challenges in old suburbs towards achieving sustainable cities. The government underscored its worry about the ballooning population that strains the existing sanitation systems which were not designed to accommodate this unplanned expansion. The worst case is that sewer lines in these suburbs are old and unable to handle the current volumes of waste. This has translated to frequent blockage, overflows, and sewage spills in residential areas, endangering the groundwater from which UNICEF and the government have sunk boreholes to aid water supply issues. According to Makwara and Tavuyanago (2012), the problem is compounded by the fact that sanitation and hygiene have fallen to a low level in most parts of the country developed areas and urban centers included. However, they reiterated that the scenario is not peculiar and unique to Zimbabwe. Urbanization is increasing at the fastest rate in Sub-Saharan Africa at the expense of sanitation and hygiene services, hence the need to change the narrative. Improving maintenance

and monitoring protocols, and ensuring sanitation systems are functioning optimally, the government pledged its commitment to the development of smart cities. This was echoed by the Deputy Minister of National Housing and Social Amenities in his address to the Construction Industry Players during the “Infrastructure and Construction Summit” held in Nyanga (The Herald..2024). The Minister reiterated that the development of smart cities has been cited as a national priority which requires public-private partnerships (PPPs) to ensure its success story towards the improvement of urban infrastructure in line with modern trends. The development of sustainable smart cities initiative will help to alleviate the developmental challenges affecting the sustainable country’s housing infrastructure development towards the improvement of residents' social status (National Development Strategy1,2020). The government apart from addressing sanitation challenges in older suburbs towards the improvement of public health and environmental conditions, on the other hand, contributes to the overall livability and resilience of Zimbabwe cities. The government in its National Development Strategy1 (NDS1) plan underscored its commitment to prioritize investment in the redevelopment and development of state infrastructure to meet the needs of its growing population towards addressing its commitment to fulfilling the Sustainable Development Goals 11 which mirrors making cities and human settlements inclusive, safe, resilient and sustainable by 2030. The goal alludes that the pace of urban growth is unprecedented as urbanization has brought with it an enormous increase in air pollution and lack of access to basic services and infrastructure.

Sustainable Sanitation Infrastructure in Developing Countries Suburbs in Ancient Cities in Africa

Sustainable sanitation is a fundamental element for enhancing public health, protecting the environment, and promoting social equity, especially in the old suburbs of ancient cities in developing countries like South Africa, Mozambique, and Kenya. South Africa, just like many developed countries, faces significant challenges in providing sustainable water supply and sanitation services due to vast water supply and sanitation infrastructure backlogs (Department of Water and Sanitation,2018). Many ancient cities were not designed to accommodate current sanitation needs, leading to outdated systems that are often overburdened. These areas often face unique challenges due to their historical contexts, demographic pressures, and inadequate infrastructure. The high population density in these suburbs strains existing sanitation facilities, leading to blockages, leakages, bursts, overflow, and pollution. Addressing the sanitation needs of old suburbs in ancient cities in Africa requires a multifaceted approach that respects the introduction of eco-friendly technologies that promote sustainable infrastructure. By integrating modern technologies, (Ecological Sanitation (EcoSan) with local practices and community involvement, these areas can develop resilient sanitation infrastructures that safeguard public health and the environment Thus sustainable sanitation is where infrastructure systems need to be economically and socially acceptable, technically and institutionally appreciable by the inhabitants towards the promotion and protection of the environment and the protection the inhabitant from imminent diseases caused by inappropriate sanitation infrastructure. According to Schaub-Jones (2022), in 2015, African Ministers responsible for sanitation and hygiene adopted the Ngor Declaration on sanitation and hygiene, undertaking to achieve universal access to adequate and equitable sanitation and hygiene services, and an end to open defaecation by 2030. Regrettably, the current reality is far removed from this (Satterhawaite,2019), as large areas of the continent (Central and Eastern Africa) are struggling to provide adequate and sustainable sanitation to almost half of their urban population. Mwanza (2020), bemoaned that the challenge of urban sanitation in developing countries has been the widespread lack of clear accountability by government bodies (Ministry) to coordinate, focus, plan, and budget lines on urban sanitation. The argument is that in most developing countries in Africa once there is an establishment of the water company or companies for water and sewerage in their name (s) the assumption is generally made that urban sanitation is adequately covered in the utility which in reality is not. This was supported by Kanangile (2020) cited in Mwanza 2020, who raised accountability of sanitation at a University of North Carolina Water and Health Conference 2020, that the issue of accountability is a problem in many developing countries (Zambia, South Africa, Kenya, Ghana, Burkina Faso, Zimbabwe), and it was exposed that without an institutional home led by the highest political level, sanitation be it urban or rural will not receive as much attention that is the reason the NGOs have chipped to address the scourge. Urban sanitation is a critical issue, moaned the Executive Secretary (Kanangile 2020) cited in Mwanza, of the African Ministries’ Council on Water (AMCOM), that governments, need to ensure that one, principal accountable institution takes clear leadership of the national

sanitation and hygiene to achieve sustainable sanitation infrastructure across urban and rural setups. Thus sustainable sanitation systems improve sanitation to enhance productivity and reduce healthcare costs, preventing contamination of the environment. The sentiments raised by Motsoeneng (2022) exposed that from a glance South Africa seems to have made significant progress in the provision of access to sustainable sanitation services, but a closer look paints a different picture of the state of infrastructure challenges, ranging from functionality of sanitation facilities, financial viability on the part of municipalities that militate against the state of sanitation infrastructure. An urban area is the heart of all development. Investing in sustainable sanitation infrastructure in Africa is not only a public health imperative but also a pathway to economic growth and environmental sustainability. Sanitation issues are one of the most deadly problems faced across the globe, even though access to water supply and sanitation is a right and basic need for every individual. The health of the people dignifies life and is ensured by the provision of improved water supply and basic sanitation. This translates to proper sanitation that promotes health, social, and basic services to the citizenry and this is the first level for poverty elimination among developing countries (Adugna,2023).

RESEARCH METHODOLOGY

The study was conducted in old high-density suburbs located in Ancient cities in Zimbabwe (Bulawayo and Harare). The Ancient cities were purposively sampled considering their worst cases in sanitation infrastructure facilities among other Ancient cities. The research was informed by the Integrated Behavioural Model for Water, Sanitation, and Hygiene (IBM-WASH) (Dreibelbis et al,2013). The study adopted an exploratory qualitative study design which gives the researcher the autonomy to change the subject, and direction as a result of new data that appear and new insights that occur to them (Lelissa,2018). The flexibility in exploratory research does not mean the absence of direction to the inquiry. What it does mean is that the focus is initially broad and becomes progressively narrower as the research progresses, (Olawale et al, 2023) According to (Adams and Schvaneveldt 1991 as cited in Saunder, Lewis, and Thornhill, 2016) An exploratory research is likened to the activities of a traveler or explorer. Its qualitative and interpretive or grounded theory is based on its flexibility and adaptability to change. An explanatory case study allows the exploration and understanding of complex issues, under investigation, and explores real-life phenomena through detailed contextual analysis of a limited number of events or conditions. Clough and Nutbrown (2012) a case study is exploratory which renders it an ideal plan that confines the study to a small sample that is investigated in-depth allowing the research a direct interaction with participants, in dealing with a variety of evidence which leads to triangulation of data. The semi-structured interviews were used to solicit data on the state of sanitation infrastructure and hygiene and how residents the council maintenance department team and legislators react regarding the dilapidated sanitation infrastructure that has been neglected since the colonial era. The prevailing situation in these old suburbs is catastrophic if there happens to be disease outbreaks such as cholera and diarrhea among others. A pilot test with interview questions was informally conducted in the same similar case (dilapidated sanitation infrastructure facilities) communities and with the maintenance department team in other old suburbs of Gweru and Masvingo) before being administered to the sampled cities to test the clarity and efficacy of the inquiry of questions before use. In-depth interview questions were directed to purposefully sampled participants drawn from community members (resident committee members) in old high-density suburbs located in Ancient cities. Purposive sampling also called judgment sampling, (Lune and Berg,2017) was ideal for discovering reliable data from rich informants. The sample is an indicator of the population about the characteristics under study. Furthermore, interviews were conducted with members of council maintenance departments and legislators to establish constraints that inhibit the local authorities from revamping sanitation infrastructure or rather decongesting the settlements. The interview output was audio recorded and direct observation was also used to triangulate data collection instruments to achieve validity of data and the data was thematically analyzed.

RESULTS

The data collected was analyzed thematically from themes that emerged from the interview discussion with key informants. The study generated a critical and clear theme on sanitation infrastructure challenges. The

emerging themes were urbanization pressures due to overpopulation in the old suburbs that strain sanitation infrastructure facilities, water supply issues, and financial constraints among other constraints that affect revamping of sanitation infrastructure. Local authorities indicated that they cannot replace the aging infrastructure in old suburbs, hence they have called for the central government to chip in (The Herald 2021).

Theme 1: Overpopulated suburbs, strained outlived lifespan sanitation infrastructure facilities

The study sought to shed light and trigger attention on the state of sanitation infrastructure challenges in old suburbs in Zimbabwe (Bulawayo and Harare) towards achieving sustainable cities and smart in old high-density suburban communities as their state is a life threat to residents in these Ancient cities. The interest was also focused on how residents manage to survive in a life-threatening situation against the backdrop of the eminent outbreak of cholera and diarrhea that has so far claimed many lives within this shortest time (The Herald,2023). The aim was to find, to what extent has the local authorities and government gone towards investing in new infrastructure to replace the dilapidated WASH systems in the old suburbs in Ancient cities, municipalities, and local boards countrywide. The other aim was to establish what implications the neglected old suburbs have in achieving sustainable welfare of the populace and in meeting the achievement of sustainable goals 6 for sustainable development by 2030. That is ensuring the availability and sustainable management of water and sanitation for all. According to the state media (The Herald 2023), the capital city (Harare, Zimbabwe) has declared a state of emergency over cholera which has claimed dozens of lives, with the capital city recording 12 confirmed deaths cases, and a rise of 123 cases recorded by The Chronicle, 2023). The city fathers have declared a state of emergency in the capital city and have upped their efforts to deal with the alarming scourge.

“The situation is dire and we have declared a state of emergency to the capital city. When you have 10 people dying and a hundred cases being recorded it calls for action” **(ESDs1)**.

This has invoked memories of the deadly cholera pandemic of 2008 in which many people were killed countrywide (Makwara and Tavuyanago,2012).

“What we see now is what we last saw in 2008 when the cholera outbreak closed the cities and the country, the outbreak has come with vengeance” **(RCMs 5)**.

The city father has declared that the city cannot contain the outbreak since it is not able to supply municipal water and maintain sanitation infrastructure in most old and new suburbs in the city as it needs water trucking yet the city has few browsers which are on the wheel, the rest are down.

“We do not have adequate water supplies in the city” **(ESDs-4)**.

As a result, many residents have turned to boreholes and wells which are contaminated, the outbreak was then abated following the intervention of international organizations such as the United Nations and USAID. However, the underground water is depleting fast because of high demand in high though the cities despite the cities having received aid from non-government organizations (NGOs) to rehabilitate boreholes in the suburbs.

“Zimbabwe’s crowded capitals are not spared from climate change (droughts) dries up water sources across the cities thus residents of the cities far-flung suburbs to feel the effects of water shortages demand action” **(ESDs-4)**.

The city further confirmed that they could not fix the scourge.

“The pipeline infrastructure is experiencing cracks due to pressure fluctuations which caused the Victaulic joints (VJ) coupling to fail, leading to a subsequent pipe rupture that triggers leakage loss” **(ESDs-2)**

In 2018 a state of emergency was also declared following cases of typhoid and cholera and to date the country has recorded similar cases with hotspots being old high-density suburbs (Mbare and Dzivarasekwa in Harare)

in which sanitation infrastructure is already challenged. Reacting to this scourge the President of Zimbabwe Dr Mnagwagwa reacted by setting up a committee to oversee water supply and sanitation and hygiene in Bulawayo and Harare (The Herald and The Chronicle, 2023). The Head of state has approved the appointment of a 20-member Bulawayo and Harare Water Technical Committee to oversee the rapid improvement of water and sanitation services in the city over 100 days to curb the spread of the pandemic across the cities' major suburbs. The committee has failed to come up with any tangible strategies hence the problem continues to escalate and affects old suburbs such as Makokoba, Iminyela, Mabutweni Luveve, and Mzilikazi suburbs. However, several WASH models/frameworks are in place to address the scourge but these fail because of several limitations that range from full accountability, funding, neglect, and old sanitation facilities systems. Despite all this, the BM-WASH framework provides sound conceptual and practical solutions to improving stakeholder understanding and evaluation of multi-dimensional factors that influence water, sanitation, and hygiene practices in circumstances or settings in a dilapidated infrastructure.

Theme 2: Water supply and sanitation infrastructure issue.

Inconsistency of water supply exacerbates sanitation problems. Without reliable water access, residents struggle to maintain hygiene, leading to increased disease prevalence. Despite efforts by the Zimbabwean government through the Presidential Borehole Drilling Scheme and UNICEF to afford access to adequate safe and clean water supply and sanitation and hygiene to its citizens by drilling boreholes across the country's rural and urban settings. Unscrupulous residents are found disconnecting or locking and charging some money for accessing the precious liquid to arm-twist the people to pay.

“We see that even beyond politics some water user committees deliberately close the boreholes and then arm-twist people to pay” (RCMs-1)

Disconnecting or locking boreholes so that people are not able to access water is a violation of the residents, despite people raising these sentiments the committees continue to lock boreholes due to their political muscles, hard behavior, and selfishness. According to the city council's website, the city's water infrastructure was not designed to supply 350 000 people and was last upgraded for 1.5 million people in 1994, since then, the population has almost doubled to 2.9 million, but there has been no comprehensive upgrade to the water infrastructure.

“We have been making repairs and refurbishments to the existing infrastructure, but we cannot continue doing that anymore, because the population has grown and the infrastructure is overloaded” bemoaned the head of the water department. (ESDs-2)



Photo 1: The state of sanitation infrastructure in one of the old suburbs of the Ancient city.

The above photo 1 is a reflection of the state of the outdated water and sanitation infrastructure struggling to meet the growing population demand.

Theme 3: Urbanisation pressures

The Ancient City Fathers 2019 opened up tenders for contractors to come on board with plans on how they could re-develop these old suburbs into modern high-rise suburbs and that was a lobby for public-private partnership (PPPs). The councils' working development partners started a project to construct individual ablution facilities per household in places that are still using communal but nearly over 10 years ago and the project is yet to be completed.

Legislators lamented that:

“These old suburbs have got a rich history of this country as these places have molded some of the best lawyers we have in this country, best engineers, politicians, and many celebrated individuals that we have in this country, and for this reason, we cannot afford to allow these suburbs to die” **(LEG-1)**

The other participants also concur with legislators on issues regarding rich historical memories:

“Harare, Bulawayo, Masvingo, and Gweru are the oldest cities with old suburbs that need revamping as they have a rich history and many people connect their urban migration in these suburbs” **(RCMs-5)**

“The sanitation facilities are mismatching the population leading to perennial blockages and the sewage is flowing everywhere which is a health cataclysmic” **(RCMs-4)**.

The participants from members of the community bewailed the city council is supposed to exercise its municipal powers and provide and deliver the services, upgrading the worst of colonial infrastructure since they pay for the services which they do not get in return.

The legislators went on to suggest that:

“We need to make sure that there is a mechanism to ensure these suburbs are rejuvenated, revitalized so that they continue to be better urban centers” **(LEG-2)**

Theme 5: Financial constraint

They went on to expose that apart from the neglect that happened since the end of the colonial era, government and local authorities need to think in other terms and channel resources towards the re-development of the old suburbs.

“We worried that the situation prevailing in these old suburbs is a time bomb which may result in massive deaths due to the outbreaks of disease such as diarrhea, cholera, and other social ills, Now we therefore, resolve to recommend to the Minister of finance and economic development to annually allocates at least 2% of the national budget towards investment in new sanitation infrastructure to replace the dilapidated ones” **(LEG-2)**.

“As a department of engineering services mandated to provide services, our infrastructure is overwhelmed, malfunctioning water pipes and public water taps, as council we cannot do anything to alleviate the serious health hazard because our funds do not permit it, that is why central government has started to move in to rescue residents” **(ESDs-3)**.

The community members reiterated that:

“Zimbabwe 's local authorities lack honest leadership in the technical and policy crafting, thus exposing the residents to stand unrepresented, the central government is not extending sufficient financial resources to

support services delivery thus the messy of sanitation infrastructure gripping the country, local authorities are to blame” (RCMs-3).

“There are many reasons why the state of urban cities’ suburbs are so deplorable, which hinges backs to rampant public sector corruption and misappropriation of funds at local and central government level, this triggers failure by the government to allow for devolution of power from central government to the local authorities” (RCMs-7).

The funds allocation will go a long way in bailing out councils' budgets, and resuitate the dilapidated sanitation infrastructure towards the achievement of sustainable smart cities. This will culminate in the development of smart cities as enshrined in the Zimbabwe National Human Settlements Policy, the National Development Strategy 1 that sought collaborative drive through PPPs to develop a comprehensive smart city strategy. This initiative will unlock or alleviate housing challenges and improve residents’ social status as this will help to decongest the big cities. Moreso, if the government liberalizes devolution functions and monitors the mismanagement of resources service delivery will improve.

DISCUSSION

The research study was meant to appraise sanitation infrastructure challenges faced by the local authorities as the arm of the central government in selected old suburbs in Ancient cities in Zimbabwe. The study reveals that some of these settlements were built decades ago. Makokoba is now over a hundred years and it has remained the only African suburb in Bulawayo for 35 years before the establishment of Luveve 90 years ago, with Mzilikazi being established 70 years later, (The Chronicle,2021). The settlement was built during the colonial era and since then the old suburbs have been neglected regarding restoration of infrastructure. The vilest case is that the population has continued to increase drastically exposing the welfare and hygiene of these communities to a menace. Appropriate sustainable infrastructure that matches the population is needed to curb urbanization pressure challenges towards achieving sustainable sanitation facilities in old suburbs of Bulawayo and Harare among other ancient cities in Zimbabwe. The study reveals that high population density and congested rooms contributed towards straining sanitation facilities which led to sewer pipe bursts that translated to wet the building envelope thus deteriorating the quality of walls and floors.

Financial constraints, behavioral issues, and technical expertise hinder progress towards sanitation improvement, as these factors have led to neglect by the city's father to maintain these old houses, sanitation infrastructure, and limited partnerships to partner with experts and players from design and construction because of funding. One of the residents exposed that:

“Even the architects who have drawn up the plans for houses and other city buildings stand in awe as the country's towns and cities also face infrastructural chaos” (RCMs-3).

In 2019, Bulawayo City Council opened up the tenders for contractors to come on board with plans on how they could re-develop the areas (The Chronicle,2021), and finances to redevelop and /or decongest the residential places to reduce population pressure on sanitation infrastructure were the main mentioned reasons. This was in line with the IBM WASH model which aims to improve the design and implementation of interventions that promote sustainable behavior change in WASH practices. The Bulawayo City Council pleaded their demonstration and understanding of encounters that are experienced in water, sanitation, and hygiene in Ancient cities by adhering to IBM WASH framework and strategies, which has served as a valuable tool for stakeholders working to address WASH-related challenges and promote a positive behavior change in communities.

The incapability of communities to invest in sanitation facility infrastructure combined with low income as well as ownership restriction on the responsibility of infrastructure re-development is another great challenge. To this effect, the legislators appeal to the government to demolish some of these structures and build decent flats for these families and/or decongest the places by establishing new suburbs elsewhere to relieve pressure

in these areas. It was exposed that some of these residents have lived in these houses without title deeds over time. The legislators pleaded council to transfer these homes to individual ownership as most of them have lived in them for more than 25 years and responsibilities on sanitation infrastructure are compromised because of neglect and ignorance (The Chronicle,2021).

The suburbs might have sustainable standards of infrastructure if financial support from local authorities and the central government were extended to these old suburbs. Zimbabwe's Ancient cities unlike other developing cities have received little non-governmental organizations (NGOs) assistance to upgrade sanitation issues regarding dilapidated infrastructure, and rehabilitation of old suburbs except for aid on water supply in the form of borehole drilling among other services. Moreover, sanitation infrastructure in old suburbs has not received budgetary priority support from the local and the central government in Zimbabwe, The authorities have a bias toward the development of new settlements through public-private partnerships (PPPs) hence why legislators are begging the central government to set aside a small share of funds of the national budget towards rehabilitating infrastructure in old suburbs countrywide (The Herald, and The Chronicle 2021). They argue that it is prudent for the central government and local authorities to channel resources towards the redevelopment of the old suburbs. They moaned that extra priority support needs to be extended to these poor old suburbs. These communities are affected by a lack of financial resources to meet the needs of this population for sustainable sanitation infrastructure facilities as these areas are the recipient of rural-to-urban migration pressures. How these residents stay in these suburbs has led to sanitation infrastructure challenges.

CONCLUSIONS AND RECOMMENDATIONS

The study aimed to explore sanitation infrastructure challenges in old suburbs in Ancient cities towards achieving sustainable modern urban development, by fostering community involvement, leveraging contractors' partnerships, and coming up with innovative solutions in Zimbabwe towards a healthier move towards sustainable cities. The study proposes the introduction of low-cost sustainable green sanitation infrastructure technologies, such as eco-toilet systems, as emerging sustainable alternatives that are suitable for densely populated areas since some old suburbs such as Iminyela and Mabutweni in Bulawayo are still using communal toilet infrastructure which is not hygienic for the overpopulated environment. The study recommends the enactment of policy frameworks to support sustainable sanitation infrastructure facilities, and collaborations between the central government and private entities in the building services engineering to foster public-private partnerships (PPPs) to help improve sanitation services and infrastructure amenities. These partnerships can leverage additional resources and expertise towards the rehabilitation of these residential settlements. Community engagement models through public awareness and education are some of the success stories of local communities, local authority maintenance departments, and central government are encouraged, co-production in planning and implementing sanitation projects, nurturing a sense of ownership and responsibility. The neglect of these old suburbs by local authorities and the central government regarding the level of sanitation infrastructure is calamitous to the achievement of WASH objectives; saving lives, contributing to protection, safety, dignity, peaceful coexistence, and reducing mortality and morbidity by preventing the transmission of disease outbreaks. The IBM-WASH framework provides a valuable lens for addressing sanitation and hygiene challenges in the unique context of old suburbs in ancient cities. The combination of behavioral insights with sustainable infrastructure solutions fosters long-term improvements in public health and environmental sustainability.

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