Everyday Realities and Practices in Accessing Water and Sanitation in Peri-Urban Settlements in Greater Harare

SHAMISO HAZEL MAFUKU[1]

Abstract

This article examines the magnitude of water and sanitation challenges in peri-urban areas of Greater Harare and the coping mechanisms and strategies residents have adapted to survive in times of scarcity and structural failure. It employed fieldwork backed by observations and a survey-based case study approach, with Caledonia and Hatcliffe Extension as case studies. One hundred questionnaires were distributed in Hatcliffe Extension and 350 in Caledonia. Twenty (20) interviews were also done with residents in each residential area. The article, therefore, adopts a phenomenological approach which helps in bringing out the lived experiences of peri-urban dwellers. The study revealed the day-to-day struggles of the residents which include travelling long distances to water sources, unsafe water sources, compromised water quality, sanitation practices that affect the disabled and females and sewer mechanisms that do not ensure safe containment of excreta, hence pose a threat to human health. Overall, the Sustainable Development Goals (SDGs) of 2015 set some targets for water and sanitation to be achieved by 2030. Progress in improved water supply and sanitation coverage in cities of developing countries has, however, remained extremely slow and the situation is worse in peri-urban areas of major cities.

Keywords**:** *peri-urban, water, sanitation, realities, practices, urbanisation*

[1]Department of Architecture and Real Estate, University of Zimbabwe, Zimbabwe, Email Address: smafuku@eng.uz.ac.zw

INTRODUCTION

Water is a basic human right, and having access to it is essential for human survival. This is under Sustainable Development Goal number 6, which seeks to provide an effective and clean water supply to reduce the proportion of the world's population without access to safe drinking water (United Nations, 2017). However, low-income peri-urban regions in most developing nations are distinguished by a general lack of appropriate infrastructure, sanitation and water supply for the peri-urban population. On the peripheries of developing cities, water and sanitation needs of the peri-urban poor are not being met through conventional methods such as the expansion of public utilities or formal large-scale private sector intervention. Instead, much of their needs are often met through officially unrecognised means such as unprotected wells, informal water vending, rainwater harvesting and illegal connections, among others (Allen *et al*., 2006; Peloso and Morinville 2014).

Peri-urban areas of Greater Harare are no different as they are characterised by inconsistent water supply and a lack of sewer reticulation. These problems are anticipated to worsen in the future due to an ever-increasing urban population requiring the sharing of already insufficient and sometimes poorly managed resources. In light of this, this article intends to highlight the magnitude of water and sanitation challenges in Greater Harare peri-urban areas and to explore everyday practices, experiences and hardships of people living in these areas bringing to light various alternatives and strategies they resort to, to access water and improve their sanitation conditions under unreliable formal services.

RESEARCH METHODOLOGY

This article is based on findings from a Doctor of Philosophy research study on the sustainability of water and sanitation systems in peri-urban areas of Harare. The data were collected between October and December of 2020. The article employed a survey-based case study approach, with Caledonia and Hatcliffe Extension as case studies. One hundred questionnaires were distributed in Hatcliffe Extension and 350 questionnaires in Caledonia. Twenty (20) in-depth interviews were conducted with the residents in each residential area. Observations were key to having an appreciation of the realities on the ground. Secondary

data on these two case studies were utilised. The article adopts a phenomenological approach which helps in bringing out the day-to-day struggles and lived experiences of the peri-urban dwellers.

DESCRIPTION OF STUDY AREAS

Caledonia is located about 25km east of Harare. The area is divided into 20 phases and the development of the area was taken up mainly by various co-operatives. Layouts were prepared and only Phases 1 to 3 were approved initially. Phases 4 to 20, however, experienced rapid development without having gone through all the normal development planning and approval procedures and, therefore, they comprised what could be termed an informal settlement. However, the Urban Development Corporation (UDCORP), a parastatal under the Ministry of Local Government and Public Works was eventually contracted in 2015 as the project manager of the area with a mandate to regularise the settlement. All layouts for the remaining Phases 4 to 20 were eventually approved by the Ministry responsible for local government. Initially, Caledonia had been administratively under Goromonzi Rural District Council (RDC) in Goromonzi South Constituency until 2015. In 2015, the government then placed Caledonia under the administration of Harare City Council (HCC) and appointed UDCORP to manage the project. However, due to the fragmented nature of planning efforts by different co-operatives and land developers in the area, Caledonia was characterised by discordant development which has poor sanitation, unreliable water supplies, and inadequate public facilities. This study focused mainly on Phases 1 to 6 of Caledonia.

Hatcliffe Extension is located approximately 20 km north of Harare's Central Business District (CBD). The settlement is on state land administered by the HCC. The settlement was established initially as a holding camp in 1993 for Churu Farm and Dzivarasekwa holding camp evictees. The area can be accessed through Borrowdale Road or Alpes Road and is zoned mainly for high-density residential and is surrounded by medium to low-density areas. The majority of the houses in Hatcliffe extension were brick and mortar, wooden cabins and a few polythene shacks which were developed as part of Operation Garikai. However, most of the residents have since upgraded their structures from polythene

shacks to brick and mortar over the years. The government, under a USAID funded project, managed to install water and sewer reticulation infrastructure. However, the water supply continues to be erratic due to capacity challenges in Harare City. In the absence of a reliable supply of reticulated water, residents use water from wells and boreholes. There are, therefore, numerous water and sanitation issues in Hatcliffe Extension that this study intends to unveil.

LITERATURE REVIEW AND THEORETICAL PERSPECTIVES

The provision of water and sanitation has always been an issue of concern worldwide. The Millennium Development Goals (MDGs), launched in 2002 and ran until 2015, had a specific target regarding water and sanitation. The MDGs were adopted by 189 United Nations (UN) member states and set eight development goals (WHO, 2017). Target 7c of the MDGs aimed to halve the number of people without sustainable access to safe water and basic sanitation, including hygiene (United Nations, 2017). At the end of the Millennium Development Agenda in 2015, the results achieved by the MDGs were mixed. According to the United Nations, the water-related MDG target had been achieved, yet in 2015, there were still 663 million people without access to an improved drinking water source. It is estimated that at least 1.8 billion people around the world were using water sources contaminated with faecal bacteria in 2015. The MDG target for sanitation was not achieved. In 15 years, the proportion of people around the world using an improved sanitation facility increased from 59 to 68%. However, 2.4 billion people were still without access to improved sanitation in 2015 and 892 million of these practised open defecation. In addition, the lack of faecal sludge management and wastewater treatment facilities continues to pose significant risks to public health and the environment.

Due to these observations, the MDGs were succeeded by the Sustainable Development Goals (SDGs) for the 2016–2030 period. SDGs were created and agreed on by 193 countries across the world and they comprise a set of 17 goals. SDG 6 aims to ensure the availability and sustainable management of water and sanitation for all. More specifically,

8 targets within SDG 6 need to be attained by 2030 as indicated in Box 1 below:

Box 1: Sustainable Development Goal Number 6 (United Nations 2017)

1. Achieve universal and equitable access to safe and affordable drinking water for all.
2. Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
3. Improve water quality by reducing pollution, eliminating dumping, and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
4. Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
5. Implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
6. Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes.
7. Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling, and reuse technologies.
8. Support and strengthen the participation of local communities in improving water and sanitation management.

THEORETICAL FRAMEWORK

This article is guided by the systems thinking theory. A system consists of several components or subsystems that depend on each other. A system is defined as a unified whole or set of interrelated and interacting elements/components. "Systems thinking" is, therefore, understood as the ability to see the world as a complex system where everything is connected to everything else. In a whole system, nothing is irrelevant. The parts are integrated into a different, more complex and generally more competent thing by their relationship to each other in pursuit of a common goal. The concept of systems thinking is very vital to this study as it feeds into the concept of sustainability. Sustainability is a complex concept including ecological, economic and social dimensions that in turn, involve several aspects that are interrelated in a complex way, such as cultural, health and political aspects. Systems thinking that focuses on a system's interrelated

parts could, therefore, help in understanding the complexity of sustainability (Adetunji, Price, Fleming and Kemp, 2003). In this study, it is recognised that water and sanitation problems cannot just be solved by quick technical solutions. Solutions to these problems require the consideration of all aspects, that is, environmental, economic, social, cultural, educational, communication and scientific aspects. The sustainability of water and sanitation systems in peri-urban areas can, therefore, be achieved by taking into account interrelations between people, the environment and ecosystems using the systems approach to problem-solving. The application of the systems approach to water and sanitation management, therefore, presents a better understanding of the interconnections and relationships that help to create the conditions necessary for the development of inclusive and sustainable urban systems, (Kubanza, Das & Simatele, 2017).

WATER AND SANITATION PROVISION IN PERI-URBAN AREAS

Most low-income peri-urban settlements lack adequate water and sanitation service provision. Given the general inadequacy of service provision in the peri-urban context, most households spend a significant percentage of their income to obtain water. As a result, these areas are affected by water and sanitation-related diseases, including diarrhoea, intestinal worms, typhoid, cholera and dysentery, with the poorer groups being most exposed and disadvantaged. There are several ways that the peri-urban poor might obtain access to water on a day-to-day basis. In terms of accessing water for domestic use, peri-urbanites have relied on diverse water sources ranging from private tankers selling water to the sinking of protected and unprotected wells and reliance on communal sources of water such as communal boreholes, nearby rivers and other sources. These systems are often needs-driven and they are rarely supported by government authorities within most developing nations (Fonjong and Fokum, 2017).

In developed nations, however, they prioritise the water supply wheel which depicts the responsibilities of the public, private and community sectors in water provision to the fast-growing population, and the extent

to which these roles are based on cooperative agreements between two or three of these sectors and at various sizes (Allen, 2010). The public sector, for example, may exist as either highly centralized state institutions or decentralised local entities; none of the three sectors can be considered homogenous. Similarly, there may be formalised arrangements at community level, such as community schemes actively sponsored by the public sector or by external Non-governmental Organisations (NGOs), and more informal relations of cooperation based on solidarity ties. These are some of the strategies employed in peri-urban areas of developed nations (Fonjong and Fokum 2017; Buechler, Devi and Keraita, 2013; Jimu, 2012).

A variety of diverse (public-private) organisational models can be used to provide water and sanitation services. Governments, for example, may take on diverse roles in the delivery of these services. The actual act of creating, maintaining, and providing a service is referred to as direct provision, whereas indirect provision is the function of ensuring that the service is available through choices about policy and service standards. Governments may be in charge of organising, funding, authorising, and regulating producers in this situation (Chirisa, Mazhindu and Bandauko, 2016). Another arrangement may be a long-term partnership between the state as a service provider and a group of residents. A regulator provider-consumer triangle is frequently used to illustrate the basic responsibilities and relationships involved in the supply of water and sanitation to the urban population. However, Zimbabwe and other African countries have major variations in how this triangle operates in the methods used by the peri-urban poor to get water and sanitation and the types of arrangements mandated and supported at a policy level by important entities such as influential NGOs (Peloso and Morinville, 2014).To a significant degree, continuing discussions regarding the best institutional structures for dealing with water and sanitation have nothing to do with natural processes or social behaviours. Water and sanitation services are the subjects of competing political schemes based on opposing ideas and value

systems. Such opposing viewpoints may be seen in the argument over whether water and sanitation should be considered a human right and universal entitlement, or a commodity given through the market. Examining access to services is the first step in answering the question of whether impoverished peri-urban customers should be treated as consumers entitled to their money's worth through market transactions or as citizens entitled to a range of services.

In countries such as Egypt and Pakistan, communities have extended their existing water distribution infrastructure with the help of engineers and non-profit organisations. In peri-urban areas, this is not common practice and is not a viable solution, particularly in cases where attempts are being made to control urban expansion, for example, in Mexico City's peri-urban and suburban areas, where the main water distribution system has yet to reach, have small decentralized reticulated water distribution systems (Hofmann, 2011). In peri-urban Cochabamba in Bolivia, there are 90 community-operated water systems, each of them saving between 50 and 300 families, and collecting water from either subterranean or surface water sources. Stored water is provided to a yard or home connections via overhead storage tanks (Bartels, Bruns, and Alba, 2018). The product of a collaboration between a commercial consortium and the city's municipal water authority is an attempt to standardise and scale up the sanitation and water provision system, a non-profit foundation and water committees with community representation. Maintaining adequate sanitation in metropolitan areas and a healthy environment, in general, requires such a system.

DISCUSSION

This section presents the findings on the magnitude of water and sanitation challenges in peri-urban areas of Greater Harare and the coping mechanisms and strategies that residents have adapted to survive in times of scarcity and structural failure. The findings are based on surveys carried out in the sampled peri-urban areas of Caledonia and Hatcliffe Extension

and key informant interviews carried out with officials from relevant organisations such as local authorities, community-based organisations and non-governmental organisations. Generally, low-income peri-urban areas have expanded greatly in the past decade but improved water supply and sanitation coverage in these areas has remained extremely slow.

Many peri-urban residents in Harare can be classified as water-poor since they lack access to appropriate water and sanitation services to satisfy their requirements. The water poor in Caledonia and Hatcliffe Extension are not only low-income households since people of higher-income categories frequently lack access to basic water and sanitation facilities. Low-income peri-urban dwellers are, however, more vulnerable than high-income residents because they frequently lack the financial and political means to enhance their access to water and sanitation services in a way that is not only affordable but secure in the long run. The day-to-day struggles of the residents in peri-urban areas include travelling long distances to water sources, unsafe water sources, compromised water quality, sanitation practices that affect the disabled and females and sewer mechanisms that do not ensure safe containment of excreta, hence pose a threat to human health. Water sources are barely safe and are highly exposed to contamination due to proximity to latrines and septic tanks.

ACCESS TO WATER IN CALEDONIA AND HATCLIFFE EXTENSION

Caledonia does not have a reticulated municipal water supply service in place so the residents are largely dependent on multiple sources of water supply. According to the respondents that participated in the household questionnaire survey in Caledonia, 32% (n=112) highlighted that they depended on communal boreholes, 32.9% (n=115) have protected wells on site, 20% (n=70) use unprotected wells and 15.1% (n=53) indicated that they used other sources. When they were asked to elaborate on other sources, the respondents indicated that this included the natural springs that are located in a wetland in Caledonia, bulk water buying and filling storage tanks and individual household boreholes.

As an alternative to cope with water supply issues, most of the residents have resorted to the use of deep wells as a source of water for domestic use. The study revealed that both protected and unprotected wells constitute 53% of the water sources that the respondents rely on for domestic use. Wells are, therefore, the most common water source in Caledonia followed by the use of communal boreholes.

Plate 1: *Deep wells in Caledonia* (Fieldwork, 2020)

The unprotected wells leave the water exposed to contamination. In some instances, the protected wells are dug closely to substandard septic tanks, and some of these tanks have no proper soak away mechanisms, which then poses critical health hazards to the residents, especially during rainy reasons. As desperate measures, the respondents collect water for domestic use from the two nearby natural water springs. The residents pointed out that the springs never dry up, therefore it makes them a more reliable water source for them than their wells all year round.

Boreholes, on the other hand, remain one of the most reliable sources of water for drinking in Caledonia. However, the number of boreholes in

the area seems is inadequate in comparison to the number of households that they are supposed to service. An official from UDCORP indicated that they installed about 22 communal bush pump boreholes in Caledonia. The boreholes were not evenly distributed given that some areas had no adequate water table and the boreholes were then sited in areas where there was water availability. To add to that over 50% of the boreholes installed by UDCORP are no longer functional and various other non-governmental organisations such as UNICEF and OXFAM have chipped in to install solar boreholes to help the community with safe water for drinking. Of the sampled Phases 1 to 6 phases understudy, only Phases 1, 3 and 4 had functional boreholes, whilst phases 2, 5 and 6 walked more than 3km to access water from the communal boreholes in other phases since the boreholes in Phases 5 and 6 are non-functional and Phase 2 has no borehole at all. There are only 11 functional boreholes that serve Phases 1-6 that are not adequate for the population.

The situation in Hatcliffe Extension is slightly different as a portion of the settlement is serviced with municipal water, whilst other areas are not connected to municipal water reticulation. Findings show that the Muzinda area is fully serviced with a municipal water infrastructure system. The government, under a USAID-funded project, contracted Forit Contractors to install a water and sewer reticulation infrastructure system. About 3200 stands in the area were serviced with a water reticulation system. However, the respondents barely make use of the municipal water given that the water is available once in a while, sometimes once in six months, a situation which is not sustainable. The situation has resulted in the majority of people in Hatcliffe Extension relying on multiple sources as alternatives to municipal water in the face of scarcity. Residents rely on communal boreholes, deep wells and bulk water purchasing for domestic use. Figure 2 shows the water sources that respondents rely on in Hatcliffe Extension.

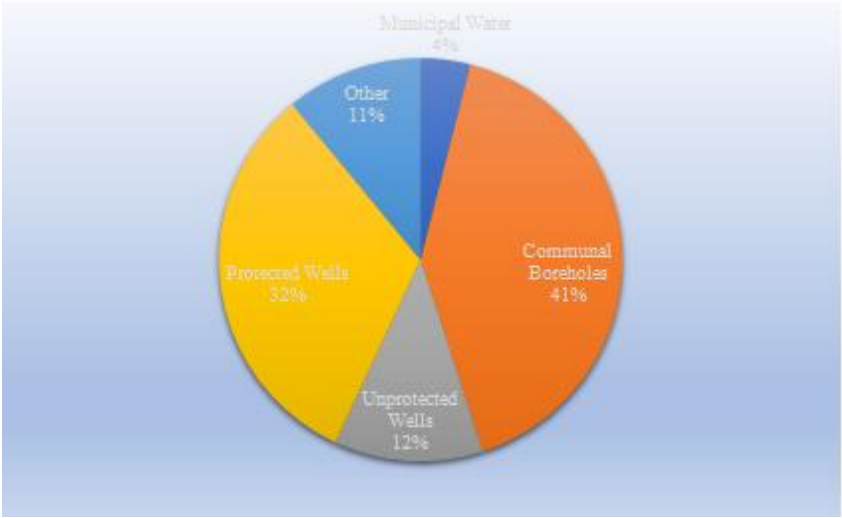

Figure 2: *Water sources respondents rely on in Hatcliffe Extension* (Survey, 2020)

According to the survey carried out in Hatcliffe Extension, only 4% (n=4) of the respondents indicated that they rely solely on municipal water for their domestic use, whilst the rest highlighted that municipal water is highly unreliable. Some of the respondents (44% (n=44)) have now drilled deep wells on their stands and they indicated that they rely on wells rather than tap water. Of the 44% with wells on their stands, 32% (n=32) of them were protected wells, whilst 12% (n=12) were unprotected. Other respondents 41% (n=41) rely on communal boreholes completely because municipal water is almost always unavailable. Among the respondents, a few, 11% (n=11) rely on other sources which include bulk water buying and personal boreholes on their stands where they use storage tanks and piped water. Those who do not have any alternative water sources on their stands rely on community boreholes, neighbours' wells and sometimes on municipal taps once in a while when water is available. The majority of the people in the area rely on community boreholes even though they have drilled wells on their stands given that these wells dry up during the summer season. There are 10 boreholes within the sampled study area and they are not evenly

distributed and insufficient given that four out of the 10 are not properly working due to a lack of repairs and maintenance.

SANITATION IN CALEDONIA AND HATCLIFFE

A big number (94% (n=350) of the respondents within Phases 1 to 6 of Caledonia confirmed the availability of toilets on their respective stands, whilst the remaining 6% (n=21) highlighted that they do not have toilets on their stands yet but are currently using neighbours' toilets and any other public toilets they may access. The survey carried out in Caledonia revealed that 7.1% of the respondents use flush toilet systems as a method of doing away with human waste. This comprises a group of people that have installed boreholes and storage tanks on their stands individually and the waste is flushed into septic tanks. The majority of the sampled population (78%) in Caledonia use pour-flash toilets. Pour-flash toilets do not have a shank and people pour the water directly into the toilet hole to flush the waste away into sceptic tanks. Several individuals indicated that they use recycled water for flushing the toilets. The water is usually obtained from water that will have been used to do laundry or wash dishes or the remaining water after a bath. The survey revealed that 8% of the respondents use Blair toilets, only 1% use pit latrines and 6% have no toilets on their stand. None of the respondents admitted opening defecating. The study revealed that, out of the total sample size, 85.1% of the respondents use sceptic tanks as a method of disposing of human waste whilst 14.9% of the total respondents (households) use latrines and Blair toilets to dispose of human waste.

In terms of sanitation in Hatcliffe Extension, a portion of the area is connected to the municipal sewer reticulation system which was constructed under the USAID-funded project in the late 1990s. Findings from the survey revealed that out of the total number of respondents, 97% (n=97) of them confirmed the availability of toilets on their stands and only 3% (n=3) of them have no toilets on their stands. Those who do not have toilets rely on neighbours' ablution facilities. As a result of the inadequacy of the piped water supply system in Hatcliffe Extension, among those who have a toilet on their stands, 77% (n=77) use the pour and flush toilet system as a method of doing away with their human waste. Pour flush toilet systems for the reticulated area dispose of waste

into the municipal sewer pipes whilst the other parts are disposed of in septic tanks. Only 12% (n=12) of the respondents have a proper flashing system that works using a piped water system (this is mainly because they have individually drilled boreholes) and 5% (n=5) of them use Blair toilet systems and 3% (n=3) of the surveyed respondents use pit latrine toilets. Only 3% (n=3) pointed out that they have no toilets on their stands and none of the respondents resorted to open defecation. Community leaders indicated in a focus group discussion that they have since mobilised women to carry out health campaigns in the community against the use of the Blair toilets and pit latrines in the community. This was triggered by the fact that the quality of most Blair toilets and pit latrines is worrisome, especially in an urban setup.

It is important to note that most of the toilet structures in both areas are not properly constructed and many of them are of poor quality. Some people have resorted to using sacks and plastics as walls to cover their toilets and bathrooms. In terms of sewer disposal mechanisms, 67% of the respondents dispose of their waste in the municipal sewer reticulation system, 8% use the Blair and pit latrine system where waste is deposited directly into the pit and 22% of the respondents use septic tanks, whilst the remaining 3% are without toilets. This is quite a different scenario as compared to Caledonia. Further to that, plans to construct new offsite infrastructure for sewer is underway. An engineer from Harare City Council informed the researcher that sewer reticulation designs for expansion have been submitted to the council for approval and offsite infrastructure is still at the design stage and needs funding from the council.

DISCUSSION

A great number of respondents in both Hatcliffe Extension and Caledonia highlighted that the availability of safe drinking water is a critical issue that needs to be addressed to prevent outbreaks of water-borne diseases because some households are drinking contaminated water from springs and shallow wells since there are very few functional community boreholes in the given areas. Besides communal boreholes, the majority of the residents in Caledonia and Hatcliffe Extension have resorted to using deep wells as sources of drinking water and other household uses

according to respondents. Because some of the deep wells are dug adjacent to substandard septic tanks and some are left exposed (unprotected wells), this creates serious health hazards as most of the water sources are exposed to contamination.

Most wells are insufficient in terms of delivering water to the inhabitants since they dry up, particularly during the summer season when the water table drops. Non-Governmental Organisations (NGOs), such as UNICEF, have attempted to install boreholes for the establishment of water stations for the residents. UDCORP in Caledonia has erected some boreholes, but a majority of them are no longer functional due to lack of maintenance. Respondents noted that these boreholes are insufficient to meet the needs of the community since the majority of people have to travel long distances to get water from these boreholes, leaving them vulnerable.

Given the lack of a sufficient water supply system in both areas, sanitation standards are extremely poor because most toilet systems rely on water for functionality. Given the risk connected with the lack of a waste management system, respondents identified sanitation as a major concern. According to the survey, the majority of Caledonia and Hatcliffe homes utilise pour flash systems and septic tanks as a sewage management system and a few of the houses in Hatcliffe Extension have a proper municipal sewer reticulation. Given that pour-flush systems and septic tanks require water to work properly, these types of infrastructure have proven to be unsustainable seeing that water supply is quite inadequate in these given peri-urban areas.

According to findings from the survey, the average stand sizes in Caledonia and Hatcliffe Extension range between 240m^2 to 400m^2 and these stand sizes do not allow for the construction of onsite septic tanks and wells or drilled boreholes on the same stand as this will result in contamination of the water sources. However, most respondents in Caledonia indicated that since there were no inspections from the responsible local authority during construction they did as they pleased. An onsite sewage treatment system is designated for stand sizes ranging from 800m^2 to 2000m^2 according to Clause 1.1.3 of SI 70 of 2004,

which is not the case in Caledonia and Hatcliffe Extension, where some toilets are connected directly to the main sewer pipeline. City of Harare officials noted that Caledonia is a ticking time bomb in terms of future disease outbreaks. This can be a result of the close proximity of toilets and deep wells thus contamination is inevitable. On the subject of sinking wells for drinking water and toilets, an official from the Department of Spatial Planning shared the same thoughts as officials from the City of Harare that Blair toilets and deep wells are an unsustainable way of existing in an urban environment. The situation in the study areas is in line with a study by Chirisa (2009) who pointed out that disease outbreaks such as cholera and typhoid are more likely in peri-urban regions due to inadequate water and sanitation infrastructure.

One of the most significant shortcomings of traditional policy and planning is that it ignores the unique characteristics of the peri-urban environment. Wandl *et al.* (2014) explained the peri-urban interface as a region in between to underline the uniqueness and dynamics of this geographical, spatial and social mosaic. This study discussed how the peri-urban interface affects the creation of peri-urban waterscapes as a different type of territoriality. Because planning models are inappropriate or poorly conceived for the peri-urban interface, as evidenced by research findings, planning routinely fails to effectively meet people's water requirements in peri-urban areas (Sutherland *et al.,* 2021; Williams & Mawdsley, 2006). This is because, in reality, informal settlements are anticipated to account for the majority of future development in peri-urban areas, but this will be moderated in the long run conversion of some informal settlements to official high-density housing. Some of Caledonia and Hatcliffe Extension's main planning issues are on how to regularise and give services to the existing informal communities, some of which have been haphazardly established, especially in Caledonia. This poses several problems for service delivery, and it will inevitably be a time-consuming and tedious process. Based on conversations with municipal officials, it is expected that little development will be achieved in this area in the medium term, which is expected to be 2030. Issues to do with lack of clear tenure have hindered building societies and other private entities from chipping in to develop water and sanitation services and infrastructure in these areas

because there is no guarantee for returns to their investments as the residents do not own the land officially.

This article argues that when it comes to getting water and sanitation services in the peri-urban area, there is a substantial difference between policy-driven and needs-driven approaches and this was noted by Chirisa *et al*. (2016). The five instances illustrate that impoverished peri-urban residents' access to water and sanitation is mostly driven by their needs and is informal rather than a result of official policy. The acknowledgement of these practices and their articulation to the official system under new governance regimes is the key to structural advances in water and sanitation (Silveti, and Andersson, 2019). Multiple advantages may be gained through a collective action approach to water and sanitation services. As a result, women and children will spend less time gathering water. Simultaneously, it has the potential to enhance the peri-urban poor's lives, as many of them rely heavily on water for productive purposes. Furthermore, switching from informal sellers to community-managed water systems can significantly reduce the amount of money spent on the water. This has occurred in Dar es Salaam in Tanzania, where monthly rates for potable water from peri-urban community-managed systems vary depending on quality but are often less expensive than the monthly fee for the public network system (Peloso, & Morinville, 2014). Similarly, the case of Caracas shows that having a "right" to water does not necessarily mean that the service is provided for free but rather, that mechanisms to guarantee that such a right is effectively exercised are put in place (Buechler, Devi and Keraita, 2013)

CONCLUSIONS AND RECOMMENDATIONS

The capacity of local authorities (Harare City Council in this case) to keep up with the fast-rising demands for domestic water supply is being tested by rapid urbanisation. Due to a variety of events, notably substantial rural-to-urban migration to the capital city in search of greener pastures, peri-urban zones of Harare appear to be sites of probable disease outbreaks to a large extent due to a lack of adequate water and sanitation services which is in line with the population growth in those areas. Furthermore, regional planning has received little attention as a proactive strategy for ensuring that urban and peri-urban areas coexist with minimal

harm to their people. As a result, waterborne, airborne, and other pandemic illnesses, are common in most metropolitan and peri-urban areas. In this spirit, it may be feasible to construct more inclusive cities, beginning with the acceptance of low-income households and, secondly, in the broader sense of accepting peri-urban areas into the established city system through shared metropolitanisation measures created through consensus-building by all-stakeholder players. In this vein, regional planning would be facilitative in the introduction of sufficient infrastructure that will no doubt enhance the promotion of local economic development.

The study revealed that there is no water reticulation and proper sanitation system in Caledonia and some parts of Hatcliffe Extension. So there is a need to create independent bulk water sources and construct a water and supply system for each area. There is need to come up with localised solutions for sanitation by constructing independent sewerage systems, presumably sewerage treatment ponds locally in the given peri-urban areas.

It must, however, be noted that financial and capacity constraints, including an unsupportive policy and regulatory environment, have been the main impediments to the provision of water and sanitation infrastructure in Caledonia and Hatcliffe Extension. In recent years, there has been a growing appreciation among policymakers and practitioners that the challenges of providing water and sanitation infrastructure in low-income households are complex and demand a multi-sectoral response, which could include a role for the private sector. These multi-sectoral partnerships are envisaged as potentially synergistic (the partners create more together than they can separately), with efficiency gains from parties pooling resources (financial, expertise and skills), sharing risks resulting inefficient execution and implementation of water and sanitation infrastructure projects. In light of that, this article recommends establishing long-term financing mechanisms for providing water and sanitation infrastructure, community-led water and sanitation planning and adopting resource-oriented planning and monitoring results through initiatives such as Public-Private Partnerships (PPPs). PPPs have the potential to increase the scale of delivery in water and sanitation by

bringing in private finance sector funding to supplement the limited public finances.

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