Domestic water shortages in Gweru: a time bomb for water-borne diseases

Panganai Tsitsi
Zimbabwe Open University
tsitsipanganai@gmail.com

Mangizvo V. Remigios
Zimbabwe Open University
rvmongizvo@gmail.com

Abstract

The City of Gweru has been experiencing severe water shortages since the beginning of this millennium. Water supply problems have been reported even when the water sources are full. The aim of this study is to establish the causes of the problem, its health impact, and what could be done to mitigate the problem. The study used interviews, observations, and content analysis to establish that population growth, ageing equipment, and lack of funding and of political will have contributed to the poor water supply in the City of Gweru. This has resulted in the transmission of communicable diseases, such as diarrhea, a situation which has impacted negatively on the health and well being of the city’s residents. The city needs to commit itself to turning the situation around by involving the community, building more storage facilities, and by placing monitoring and evaluation mechanisms in place.

Key words: Domestic water shortage, time bomb, water-borne diseases

Introduction

The City of Gweru has been experiencing water shortages since the turn of the new millennium. The problem got to a critical level worse than before in 2013 when the capacity of Gwenoro Dam which is the major source of water fell to as little as 1.2% (Chadenga, 2013). The situation has resulted in very erratic water supplies to high density suburbs such as Mkoba, Ascot and Senga. Some areas in these suburbs can go for months without receiving any water. The unavailability of safe water is not only a health hazard to residents but also violate the basic human right of providing clean and fresh water (Scanlon, Cassar and Nemes, 2004). This study intends to establish the causes of water shortages in the City of Gweru, its health impact and suggest what could be done to alleviate the problem.

Background to the study

A number of urban areas in Southern Africa in general and Zimbabwe in particular have been experiencing severe water shortages (Makwara and Tauyanago, 2012). Nearly half of the population (300 million people) in sub-Saharan countries lacks access to a supply of safe water while 41 per cent of the population lacks adequate sanitation (Mukuhlani and Nyamupingidza, 2014). A number of cities in Zimbabwe are facing serious water problems. Chinhoyi, Bulawayo, Chegutu and Kadoma urban areas are experiencing challenges related to the treatment and supply of adequate water to its residents (Gumbo, 2012; Mufandaedza and Kamusoko, 2012; Musademba, Musiyandaka, Muzinda, Nhachena and Jambwa, 2012; Mhlanga and Matenga, 2012). In Harare, the lack of water has forced closure of toilets.
at the Mbare residential hostels, forcing residents to relieve themselves in the surrounding bushes (The Herald, 22 January, 2010). This encourages the propagation of diseases. During Zimbabwe’s worst cholera epidemic in 2008-2009, Mbare recorded some of the highest cholera related deaths.

Contaminated water and inadequate sanitation cause a range of diseases, many of which are life-threatening. The most deadly are diarrheal diseases, 80 to 90 percent of which result from poor sanitation conditions and inadequate water supply (WHO, 2010). Epidemiological-microbiological study by Moe, Sobsey, Samsa and Mesolo (1991) concluded that in developing countries where the quality of drinking-water is poor, contaminated water could be a major source of exposure to faecal contamination and diarrheal pathogens. Diarrhoea, according to Jamison, Brenman, Measham, Alleyne, Claeson, Evans, Vha, Mills and Musgrove, (2006) is caused by infectious organisms, including viruses, bacteria, protozoa, and helminths, that are transmitted from the stool of one individual to the mouth of another (fecaloral transmission). However, WHO (2013) claim that the Rotavirus and Escherichia coli are the two most common etiological agents of diarrhoea in developing countries. On the other hand, Jamison, Brenman and Measham, (2006) puts the blame on poverty since it is associated with lack of access to sufficient clean water or to sanitary disposal of faecal waste, all of which can predispose to diarrhoea. It can therefore be argued that diarrheal disease result from pathogens ingested through use of unsafe water.

The infection that leads to diarrhoea is spread through contaminated food or drinking water, or from person-to-person as a result of poor hygiene. Although animal faeces also contain microorganisms that can cause diarrhoea, water contaminated with human faeces, for example, from sewage, septic tanks and latrines, is of particular concern (WHO, 2013).

Seriously polluted water supplies are used by at least 1500 million people worldwide (Feachem, 1980). Because of the magnitude of the health problems associated with water of inadequate quality and quantity, WHO bacteriological guidelines for drinking-water (Wright, 1982) recommend zero faecal coliforms per 100ml of water. However, some investigators hold that this is not feasible for untreated or unpiped water sources used in developing countries (Feachem, 1980, World Health Organisation, 1984). According to WHO (2013), diarrheal infection is more common when there is a shortage of adequate sanitation and hygiene and safe water for drinking, cooking and cleaning.

A significant proportion of diarrheal disease can be prevented through safe drinking-water, adequate sanitation and hygiene (WHO, 2013). A study by Kosek, Bern and Guerrant (2003) also concluded that water, sanitation, and hygiene interventions, as well as their combination, are effective at reducing diarrheal illness. A study by the joint monitoring programme (WHO and UNICEF, 2006), concluded that household water filtration reduced the incidence of both bloody and non-bloody diarrhoea by 80%.

While the health systems of developing countries are not directly responsible for changing this situation, poor water supplies place large burdens of disease on their populations, and it is those populations and their national health services that pick up the costs of diarrhoea and other diseases. Health professionals should therefore join those from other sectors (infrastructure, education, and economic development) in demanding change.

Although progress has been made in reducing mortality from environmentally mediated diseases, such as ARIs and diarrheal disease, more needs to be done to prevent these illnesses and to focus on new threats from increased industrialisation and urbanisation which have ushered in new challenges to the provision of adequate safe water (Smith, 2000).
Water that is supplied to Harare from Chivero Lake is heavily polluted with industrial waste and water weeds (Kamusoko and Musasa, 2012). Nhapi, Siebel and Gijzen (2004) contend that the water quality in Lake Chivero is deteriorating because of regular inflows of poorly treated sewage effluents. To make matters worse the City of Harare experiences water shortages which have forced residents to fetch water for domestic use from unprotected sources such as shallow wells (The Herald, 2010). This exposes the residents to diarrheal diseases such as dysentery, typhoid and or cholera.

According to the Morbidity and Mortality Weekly Report (MMWR) (2012), a total of 4,185 suspected cases of typhoid fever had been identified in Harare predominantly in the high-density suburbs of which 1,788 cases were confirmed. Water samples from six public boreholes, seven shallow wells, and three municipal taps in Dzivaresekwa were tested and the results showed that two of six boreholes and all seven shallow wells yielded Escherichia coli (an indicator of faecal contamination). However, all municipal taps tested negative for E. coli.

The report goes on to say rationing of piped, treated water from municipal systems obliges residents to use unimproved water sources to meet their water needs, putting them at risk for enteric infections. Frequent sewer blockages compound this problem by further contaminating shallow wells used by residents for drinking water (MMWR, 2012). A study by Muti et al (2014) on Typhoid outbreak in Dzivarasekwa revealed that 95% of the typhoid cases used water from a well. The lack of safe water, combined with record high temperatures, has created a perfect environment for infectious diseases and many fear a return of cholera, another waterborne illness that killed more than 4,000 people in Zimbabwe in 2009 (Huston, 2013).

Water scarcity has been attributed to a number of factors. Most of the urban areas in Zimbabwe are characterised by obsolete infrastructure. Urban local authorities cannot adequately provide services because of aging pumps, motors and pipes. The water distribution system in Harare for instance was built long before independence in 1980, and incidentally has gone without proper maintenance for several years, and its pumps, that have an expected lifespan of between 15 and 20 years, have not been replaced since they were installed (Kwidini, 2007). In Kadoma, the old system continues to break down, while the main pipeline have numerous leaks resulting in loss of up to 30% of treated water along the way.

When water is inadequate, residents are forced to use polluted water, translating into water-related diseases such as cholera, dysentery, and diarrhoea, as they fetch water from unprotected sources and use the bush system, as toilets are closed because of the shortage of water (Dungumaro, 2007).

Other factors such as increase in urban population, poor funding and lack of political will contribute towards shortage of water in urban centres (Chinyama and Toma, 2013; Lee and Schwab, 2005). The serious power shortages in Zimbabwe have negatively impacted on the supply of water in urban areas. The border town of Beitbridge, for example, had severe water problems in 2008 as its pump station could not pump water from the tower to the town because of lack of electricity (Hug, 2009). Coincidentally, this was the period when Zimbabwe experienced the worst cholera outbreak in its history and this city experienced the highest cases.

Most urban areas in Zimbabwe are synonymous with water shedding as a response to water shortages. Interrupted water service can result in the introduction of diseases into the water system due to stagnancy which favours the growth of microorganisms, (Lee and Schwab, 2005). They also observe that pathogens from materials surrounding the water pipes can be...
drawn through leakages in the networks by negative hydraulic pressure. In addition to this, Mukuhlani and Nyamupingidza, (2014) noted that lack of water resulted in people using less water to flush and this led to human waste piling up within the sewer pipe causing sewer pipe bursts polluting the environment with human waste which leads to water borne diseases.

The increase in the prevalence of water borne diseases such as cholera, typhoid, dysentery and other diarrheal diseases is both directly and indirectly related to water scarcity. Between August 2008 and July 2009 Zimbabwe experienced one of the worst cholera outbreaks in its history and a total of 95 585 suspected cholera cases and 4 287 deaths were reported (Mukandavire et al., 2011; WHO, 2010). All the provinces in the country were affected although major outbreaks were reported in cities such as Kadoma, Chegutu, Chinhoyi, and Harare (WHO, 2008). In Kadoma alone 482 deaths were recorded (WHO, 2009). In 2012 to 2013 Harare battled with typhoid and dysentery hence the water crisis in Gweru could be a time bomb for these diseases.

Research questions

The following research questions guided the study:
1. Why is there water shortages in Gweru?
2. How is it affecting the health of the residents?
3. What can be done about it?

Objectives

The study had three objectives which were to:
1. Analyse the causes of water shortages in Gweru.
2. Identify the water related disease in Gweru.
3. Suggest solutions to the problems identified.

Study area and research methodology

The study was carried out in Gweru, the capital city of the Midlands Province in Zimbabwe. The city is made up of six high density suburbs namely Mkhoba, which is made up of 20 villages (the term village is used to refer to a section within the suburb), Munhumutapa, Mambo, Ascot, Senga/Nehosho, Clifton Park and Woodlands. It has three medium density suburbs namely Ivene, Northlea and Nashville. The low density suburbs include Kopje, Gweru East, Lundi Park, Windsor and Dalesforde. Several housing projects are underway and these include Hertfordshire, Clifton Park, Dalesforde, Jericho and River Valley. The study was conducted in Mkhoba Village 19, Senga and Ascot high density suburbs which were selected purposively as they experience the most severe water shortages.

This study which was qualitative in nature utilised interviews with critical stakeholders who included city council officials such as the city engineer, representatives of residents associations and residents. The qualitative approach was naturalistic and sought to understand the lived experience of Gweru City residents in the context of water shortages and related health problems. The approach was critical in appreciating the residents’ attitudes, behaviour and feelings in response to water related health problems. The study utilised purposive sampling whereby informants were selected deliberately on the basis of their knowledge regarding water shortages or health issues of the city. According to Patton (2002) the logic and power of purposive sampling lie in selecting information rich cases for the study. Focus group discussions were also conducted at the city health centres to obtain first hand information on their health in relation to water challenges. The study also employed observations and content analysis of newspaper articles, council minutes, and
health statistics to validate the data obtained from interviews.

The data obtained were thematically analysed.

**Findings and discussions**

**Sources of Water**

Information obtained from the city engineer showed that Gweru has four supply dams, namely, Amapongokwe (40 000 000 m³), Gwenoro (32 100 000 m³), Whitewaters (4 896 000 m³) and Ngamo (1 543 000 m³). All the four dams give a full capacity of 78 583 000 m³ in a normal rainy season. Whitewaters was constructed in 1947, Gwenoro in 1960, Amapongokwe in 1984 and Ngamo in 1985. The engineer further revealed that only water from Amapongokwe, Gwenoro and Whitewaters was treated. Although Amapongokwe was the largest water source and appeared to have a lot of water it could only supply 40 percent of the city’s demand because of pumping restrictions. It was therefore used as a backup to Gwenoro. White Waters Dam can only supply 1 000 m³ per day instead of the designed 4 000 m³. Water from Ngamo was heavily polluted and was not safe for drinking. The council used the raw water from Ngamo for watering the park and other green areas in the city. Residents have often complained that the local authority used hosepipes to water the green areas. The council insisted they were using untreated water from Ngamo.

**Causes of the problems**

From the study a number of factors were identified as the causes of water shortages in Gweru.

**Obsolescent water system**

The pumps at Gwenhoro were installed in 1971 and are now old. They constantly break down causing the city to experience water problems time and again. It emerged during an interview with a local councillor that there were times when the dams might be at full capacity but the city continued to face water problems. This was as a result of ageing pumps. At the time of the study only one pump out of the three at Gwenoro was functional. If all three pumps were in operation, water could be accessed by all parts of the city. The findings were similar to the situation of Harare where the pumps have exceeded their lifespan of between 15 and 20 years (Kwidini, 2007). The city engineer also revealed that thirty percent of treated water was lost through leakages in old pipes and at malfunctioning taps. Over the years the council has not been able to replace the obsolete equipment; hence, it has resorted to repairing the old system because of financial constraints. This however could not guarantee the city adequate water for its needs.

**Population increase**

The City of Gweru, like most of the cities in Zimbabwe, was experiencing high urbanisation rates, which resulted in an increase in the demand for domestic water. The 2012 census revealed that the population of Gweru grew from 140 806 in 2002 (CSO, 2002) to 158 233 (ZIMSTAT, 2012). The figure could actually be much higher than this as some people could go unregistered for one reason or another. In addition to this the state university in the city has a student enrolment of over 20 000 students who are not included in its population statistics. Zimbabwe has been experiencing economic hardships, coupled with droughts since the late 1990s, and these have forced several people to migrate into the urban centres such as Gweru City. The high density suburbs of Munhumutapa, Ascot and Mambo have more people than they can accommodate. Information obtained through interviews showed that there was multi-habitation in
Senga and Nehosho suburbs since they accommodate Midlands State University students who fail to get accommodation on campus. Observations made in the city showed that there was a lot of construction work going on with new suburbs such as Clifton Park, Woodlands, Hertfordshire and Mtausi taking shape. Due to the increase in the population, the city is unable to manage its domestic water efficiently. Under normal circumstances, the storage tanks which should hold supplies for two days were no longer doing so. The demand, therefore, meant that at any given time the tanks were not full, as all water that was pumped was consumed directly with no water stored for a balancing effect.

**Power outages**

Zimbabwe has been experiencing serious power shortages and these have resulted in power cuts, which have negatively affected the supply of water. Information obtained from the city engineer showed that power cuts at Gwenoro water plant had serious consequences on the City of Gweru consumers. Once there is shedding at the plant pumps stop pumping water into the tanks; hence currently they do not hold any water and are always empty. This means water is pumped straight from the plant to the consumer, yet under normal circumstances it should be directed to the tanks first. Tanks should hold water that is expected to last for about 4 days. The system is supposed to use gravity to deliver water to different parts of the town. This explains why areas that are located on high ground such as Mkoba 15 and 17, parts of Senga and Nehosho went without water for long periods.

**Drought**

Climate change has contributed significantly to water shortages in the city of Gweru. Since 2000 Zimbabwe has been receiving low rainfall. The City of Gweru has not been spared from this catastrophe. Water levels in the main supply dam, Gwenoro have been falling drastically. Information supplied by the city engineer showed that inflows from the Runde catchment area were low because of low rainfall. Although in 2011 the dam was 91.9% the level fell to about 2% in January 2013. By October 2013 the dam was 1.2% full. The situation was made worse by high siltation levels in the catchment area. Following the accelerated land reform otherwise known as the Fast Track Land Reform Programme (FTLRP) there has been increased farming within the Runde catchment and this has resulted in extensive deforestation. This has resulted in massive siltation of Gwenhoro Dam (Matsa, 2012). Phiri (2014) contends that illegal gold panning in the catchment area was also contributing to the siltation of Gwenhoro, further diminishing its holding capacity.

**Limited financial resources**

The City of Gweru is facing cash problems which are in part caused by defaulters on rates and water charges. Information obtained from the council showed that the council was owed more than $7m in rates and unpaid water bills. The situation was compounded by a directive made by the Minister of Local Government on 23 July 2013 only a week before elections to write off accumulated rates, water bills, unit tax, rentals and levies that were outstanding from 2009 to June 2013 (Muperi, 2013). This was viewed as a populist directive which was meant to attract votes in favour of Zimbabwe African National Union Patriotic Front (ZANU PF). Although the cancellation of debts provided relief for some of the residents in the city who were struggling to pay their bills, it has bankrupted the council and the water supply sector. In a way the cancelling of the debts is two pronged. Firstly, it affects past money owed, and secondly it may also affect the willingness of people who have been paying consistently to continue to pay
future bills. However, during interviews residents revealed that they could not pay for the services they were not receiving. During interviews, residents in Mkoba Village 19 complained that they had not received tap water for four years. They found it ridiculous to pay for a service that was non-existent. On the other hand the council revealed it found it very difficult to provide water services if the residents did not pay as the council depended on money paid for rates and water bills. It also emerged during the study that a decade of economic meltdown that affected Zimbabwe from 1999 to 2009 resulted in the collapse of Gweru’s industrial base rendering thousands of people jobless. As a result, several households are not able to finance their living costs. This contributed to some of the defaults which incidentally affected service delivery such as provision of water. Information obtained from the Assistant Town Clerk was that the local authority intended to mitigate the crisis by drilling 31 boreholes but it had not managed to secure a $138 000 loan which was required to undertake the project.

**Shortages of chemicals**

Information obtained from the council showed that during winter water required more chemicals and treatment than any other time. However there were times when the council faced challenges in procuring adequate chemicals because of the economic meltdown and poor funding. The situation was made worse by a new wave in urban agriculture which was triggered by the same economic meltdown. Residents in Lundi Park, South Downs, Ivene and South View practised some form of urban agriculture and some of them used inorganic fertilisers like ammonium nitrate (Matsa, 2012). The dysfunctional sewage system in South Downs has led to a lot of raw sewage being directed into Runde River and into Gwenoro dam. These activities placed a heavy burden on the council as it did not have adequate financial resources to procure the chemicals. The situation has been made dire by lack of qualified staff. During the period of economic hardships there was a flight of skilled and experienced manpower as they sought greener pastures. This negatively impacted on the water delivery system.

**Intervention measures**

In the meantime the city council together with Non Governmental Organisations and faith organisations have drilled about fifty boreholes in certain parts of the city. This has helped to alleviate water challenges. It is important to note that there is very little underground water in Gweru; hence this was not the best solution. It is therefore not always the case that water is easily obtainable from these sources. Boreholes have been drilled in a number of nutritional gardens run by Midlands Aids Support Organisation (MASO) and CARE International. Members who partake in agricultural activities in these gardens at times deny residents access to boreholes. The council has also introduced water rations where the use of hosepipes for watering gardens has been banned until the water situation has improved in the city’s supply dam. The city council has also introduced a $20 once-off pump levy. However, information obtained from the residents’ associations show that they were never consulted by council on this move. Although this was a worthy cause residents felt the money was supposed to be paid in installments as many of them could not afford the once-off payment. Residents have resorted to digging wells in their backyards and they use the water for drinking and other domestic purposes.

**Health Impact**

It came out from the study that a number of health problems arise from the water shortage directly or indirectly.
Diarrhoea

Analysis of information obtained from the municipal health department showed that the number of diarrheal cases reported in municipal clinics has been gradually increasing from 2011 to 2013 for both watery and bloody diarrhea in children. This was attributed to poor hygiene and consumption of contaminated water (WHO, 2012). Table 1 provides a summary of the incidence of diarrheal cases in municipal clinics.

The prevalence of these diseases made it difficult for the city to achieve the millennium development goals particularly MDG 4 on the reduction of child mortality and morbidity. In addition to a child with diarrhoea, the mother is faced with a challenge of water for washing the nappies so they are compelled to use disposable nappies. The disposable nappies are not disposed of properly hence can further spread the diarrhoea.

Unfortunately, the city health department does not test every child who comes with diarrhoea so it cannot be conclusive if the diarrhoea is related to water or other factors. Documents from the city council revealed only 6 stool results all of which were positive to E. Coli. The presence of E.Coli is suggestive of water contamination by faeces which is not surprising as burst sewage pipes can be seen around the suburbs. E.Coli is a normal commensal of the colon but can be pathogenic under a different environment. A study of typhoid cases in Dzivareseka also revealed water contamination with E. Coli (MMWR, 2012). This together with the poor personal hygiene and sanitation in the town, it can be assumed that the water crisis is resulting in waterborne diseases.

From the interviews, it came out that washing hands after using the toilet is a luxury which can not be afforded when there is no water. The contaminated hands can then lead to infection which results in diarrhoea. It was observed that the buckets used to store water were not covered and this led to water contamination as the water was subject to abuse by children who would wash their dirty hands in the bucket. This scenario is a classic example of the faecal oral route infection which results in diarrheal diseases. Another possibility of the infection could be poor personal and food hygiene. If there is no water to use in the toilets then people will use the bush resulting in the spread of diseases. During the rainy season, the faeces are washed away into the rivers and unprotected wells which are scattered in the suburbs.

Sanitation

The study revealed that there was poor sanitation in the high density suburbs under study. During interviews, one female resident said that since their suburb could not get water, they resorted to use of bushes and maize fields for defecation. Most of the residents revealed that there were numerous sewer bursts because of insufficient water. As a result residents could not sit outdoors because of the stench that comes from burst sewage pipes. Another female respondent in Mkoba 17 said that children were encouraged to go to a bushy area known as “Kumagamu” (This name was given after the gum trees that were planted in the area) to defecate whenever there was no water in the suburb. In one of the visits to parts of the affected suburbs, the researcher observed that the area was indeed used for defecation and human waste was left uncovered. Swarms of green flies were also observed which meant that residents were exposed to
communicable diseases associated with lack of water.

Some women also revealed that since there was no water, they had resorted to using disposable baby diapers instead of cloth diapers. It was however observed that disposable diapers were not being disposed of in an environmentally benign manner. Piles of disposable diapers covered with flies were observed in the illegal disposal sites which mushroomed in all suburbs within the City of Gweru. Pickford (1983) postulates that houseflies can fly a distance of up to 5 kilometres. The prevailing situation was a health time bomb as the flies, which are effective carriers of sanitation-related diseases, were observed on the sites and could fly into the adjacent homes.

The study also established that sewer bursts are common phenomena in a number of suburbs in Gweru City. Respondents in interviews conducted in Nehosho revealed that the suburb had numerous cases of sewer bursts. Residents attributed such situations to reduced water supply to flush and push excreta in the sewer pipes. Senga and Nehosho can go for two weeks without running water. This results in human waste piling up within the sewer pipes and when supplies are eventually supplied they are not able to push the waste. The Millennium Development Goals Status Report Zimbabwe (2010) reveals that the reduction in water in the system has led to solidification and blockage of sewage systems. This results in overflow and bursts, while the resultant sludge increases the risk of water supply contamination. On top of that it is unpleasant and offensive as it produces a pungent smell and attracts flies.

**Poor hygiene**

Lack of water was seen as the root for poor hygiene to Gweru residents. Some children mentioned that at times they went to school without bathing adequately as there was no water for that. Some even had to forego going to school altogether when they failed to get water for bathing. This is because their teachers and other school children would rebuke them for being dirty. It is unfortunate their education was compromised because of lack of water. Information obtained from some secondary school going girls showed that water challenges dealt them a heavy blow when they were having periods. This was the time they needed water most. Some of the women said that they used 2 litres of water for bathing and that they focused on their genitalia so that they will not smell. This can predispose these women to genital infections due to poor hygiene.

“Hand washing after using the toilet! That is a luxury we cannot afford” said some of the women in the study. In one home, a toddler was observed washing hands from an uncovered 20 litre bucket of borehole water. The pathogens that cause cholera, dysentry, typhoid and other diarrheal diseases are spread through the oral faecal route (Jamison *et al*, 2006). This evident contamination of water creates a conducive environment for such diseases.

**Skin diseases**

One of the health care giver interviewed said that a lot of children were coming with skin rashes which resemble measles but after screening for measles none of them had positive measles. The skin rashes could be attributed to poor hygiene as there is no enough water for bathing. Some of the women who were interviewed also complained of skin problems in their children. Although skin lesions are not waterborne diseases, they are indirectly related to water shortage due to poor personal hygiene.

**Stress**

The shortage of water in the City of Gweru is a stressing situation to the residents. Since
boreholes have been drilled at specific points some households are located very far away from them. In some cases young children in primary school carry 20 litre buckets of water. This has negative impact on their bone development which may lead to difficult labour in later years. Some of those children involved in carrying water revealed that the loads of water were heavy and at times they had to make up to three trips to fetch water in the morning. This left them tired such that they had to either skip school or sleep in class. Some got to school late as time would have been lost in the process of fetching water. This was likely to impact negatively on their studies. With poor education, the health seeking behaviour of these children will be affected.

Those who could not walk to the boreholes fetched water from some shallow wells that individual households sunk within their homesteads. Some of the respondents revealed that they even collected water from unlikely sources such as the heavily polluted Gweru River. Women in the focus group knew of the hazards of using water from the Gweru but said they had no choice. Sentiments like these were common from the focus group and interviews;

‘God will protect us’

“Our systems are now used to the bacteria”

Desperation can be detected from these sentiments. The residents are using the unsafe water knowing that they are putting their health at risk. The residents were asked if they purify the water. 5% said they boiled the drinking water consistently, 70 % said not always because of lack of fuel. The remaining 25% said they just use it as it is. There is a very high risk of waterborne diseases from this behaviour of women in Gweru.

The pregnant women are more stressed than the other citizens. One woman said, “Everyday I have to carry 4 litre buckets of water from the borehole and I am afraid of losing my baby.” Another woman complained of missing appointments because she will be fetching water. “The doctor said I need plenty of rest but how do you rest when there is no water in the house?” The maternal health is at risk because of this water crisis. Such stressful situations can result in preterm labour or hypertension in pregnancy.

Conclusions

The City of Gweru is bedevilled with severe shortage of water which is impacting negatively on the health of the residents especially children. Although Gweru has not experienced an outbreak in waterborne diseases, the water crisis, if allowed to continue, is time bomb for the waterborne diseases. Provision of clean and safe water is a basic need and it is therefore imperative to look for long-lasting solutions to the problem in order to maintain the public health of residents. The government of Zimbabwe should give top priority to the provision of water. It is clear from the above discussion that the country is facing real water challenges which are impeding on the public health of its people. It is therefore essential for the government to engage the international community with the capacity to resuscitate the water provision sector and cut the health bill from waterborne diseases.

Recommendations

Revamping the water system

The city council must make the refurbishment of the water system a top priority. It must adopt new technology with ready spares and better efficiency, instead of the old equipment installed in the late 1930s through to the 1950s. The replacement of supply networks may be cheaper than to continue repairing the dilapidated networks that characterise the system in Gweru.
The refurbishment of the water system is critical as this averts the resurgence of diseases, such as cholera and diarrhoea. This is important as access to clean water is essential to ensure human well being. In the year 2000, the United Nations committed itself to attaining one of the Millennium Development Goals, which seeks to halve, by 2015, the percentage of people living without sustainable access to drinking water. The council’s options are limited.

**Increasing storage capacity**

Although the city can draw water from three sources, namely Gwenoro, Amapongokwe and White Waters dams, the city should build more storage tanks to cater for the increased population. At any given time, there should be water in the storage tanks which is then released by gravitational force to all the suburbs in the city.

The City of Gweru must work on pumping more water from White Waters as well as improve the purification of water from Ngamo. This will go a long way in solving the city’s water shortages. Water harvesting techniques should also be developed to complement other sources of water.

**Education and awareness**

It is imperative that the city health department educates residence on the importance of safe water. The residents should be availed with cheap methods of purifying water such as boiling and use of cheap chemicals. The government should also subsidise the cost of the chemicals in order to avail safe water to its people.

All diarrheal cases should be screened by the city health department as a surveillance measure as the water crisis is a time bomb which can explode anytime while the city health department is unaware.

Residents should be educated on the need to prevent pollution. There is need to find ways of disposing diapers as they are a health risk if not disposed of safely.

**References**


Huston Jane (2013). Typhoid outbreak inZimbabwe://healthmap.org/site/diseasedaily/article/typhoid-outbreak-zimbabwe-capital-


