AN ASSESSMENT OF THE WATER DELIVERY SYSTEM IN HARARE BETWEEN 2008 AND 2013: THE CASE OF BUDIRIRO HIGH DENSITY SUBURB

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This work is dedicated to my family - #Team Nyamaka Crescent#; BFN, Ruth, Gilbert, Maxwell, Ndanatsei, Stella, Danai, Francis, Chrystal, Kodzero, Inga, Chloe, Salome(jnr) and Ruddha. You are an awesome team. God bless you.

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The study assesses the current water delivery system in Harare between 2008-2013, focusing on Budiriro high density suburb. The cityôs public water supply has virtually broken down over the past years. Water supplies are erratic, irregular and inconsistent. The study is guided by the hypothesis that erratic water supply perpetuates community and social problems in high density areas.

A survey was conducted in Budiriro high density suburb. The study documented experiences and strategies used by water collectors to cope with erratic water supplies. Experiences in South Africa and Zambia relating to urban water supply were also reviewed. Documentary evidence was used to supplement information collected through survey and interviews outlining the effects of irregular water supplies.

Major findings point to a number of fundamental challenges in the current water delivery system. The water and reticulation infrastructure is outdated and cannot meet the demand of the ever growing population of Harare. There has been no meaningful investment towards the rehabilitation, maintenance, upgrading and expansion of the water infrastructure. Water supply to residents has been hampered as a result. Erratic and non-supply of water in high density suburbs has resulted in productivity costs, health costs, nutritional costs and time costs on the community.

Against this backdrop, the study concludes that all stakeholders in the water sector must join hands with the government to address the challenges of urban water supply. Financial and technical support, resource allocation and implementation of programmes must be effectively coordinated by various players to ensure that the water delivery system is functional to ensure that citizens have access to water for domestic needs. The right to water touches all aspects of national development, thus, the need to improvement to the availability of clean water in order to solve a number of developmental problems in society

ACF	Advocacy Coalition Framework
BoTT	Build, Operate, Train and Transfer
CSO	Central Statistical Office
ESAP	Economic Structural Adjustment Programme
FDG	Focus Group Discussions
HRT	Harare Residents Trust
LWSC	Lusaka Water and Sewerage Company
MDC	Movement for Democratic Change
MDGs	Millennium Development Goals
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
SPSS	Statistical Package for the Social Sciences
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Childrenôs Fund
WHO	World Health Organisation
ZANU (PF)	Zimbabwe African National Union ï Patriotic Front
ZIMPREST	Zimbabwe Programme for Economic and Social Transformation
ZINWA	Zimbabwe National Water Authority

ODUCTION

1.1 Background to the study

Water is a sensitive and an important resource. Access to safe water is a cornerstone of the substance of life, health and development in any society. The United Nations (UN) General Comment 15 on the Right to Water which was adopted in November 2002 outlines that access to water is a basic necessity of human life and everyone has a right to access water and that water should be available on a regular basis. On the ground the situation is different, there is an indication that demands for water is rapidly increasing and access to safe water especially in developing countries has been dogged by numerous challenges.

The shortage of portable clean water in Harare is now a social problem that has caused suffering for communities in most high density areas. Almost on a daily basis, in the early hours of the morning and late evenings, residents join endless queues to fetch water at water points for domestic use. Domestic water supply in high density suburbs in Harare has been erratic since the 2000s. Household water taps have run dry forcing residents to resort to boreholes that were drilled by the United Nations Childrenôs Fund (UNICEF) to contain the cholera outbreak of 2008. In areas where they are absent, residents resort to unsafe water sources leading to outbreaks of waterborne diseases. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) on its website reports that Zimbabwe could continue battling with water borne diseases if authorities do not address these water challenges as a matter of urgency.

dequate in districts closer to the city and was extended to white urban suburbs. African townships were located away from the white city. The infrastructure in the African townships was limited because installing water technologies was expensive then.

From 1980 to the 1990s, the City of Harare managed to provide adequate water to the city. It had a well developed water infrastructure including well maintained reservoirs, water treatment plants, its own power station andwell functioningwater pipes to deliver water efficiently. The City of Harare was served by Lake Chivero (formerly Mcllwaine) built in 1952 by the then Salisbury Rhodesian government for water supply and later a dam was constructed on Manyame River.

The post-independence period also saw the birth of new high density suburbs such as Budiriro, Kuwadzana, Warren Park and Hatcliffe that had municipal water and flush toilets then but little was done in terms of expanding the water supply infrastructure in light of the increased levels of consumption.

Around the late 1990ôs, Zimbabweôs water supply was not spared of the broader national crisis that resulted in the breakdown of public service delivery in areas such as electricity supply, health services and education. There was an erratic water supply in most suburbs and in some areas there was non- supply of water. Budiriro, Mabvuku, Rugare, Mbare, Glen-View are experiencing water shortages. Several upmarket suburbs such as Borrowdale, Greendale, Msasa and Highlands are also experiencing water shortages but these residents have a range of alternatives to mitigate this social problem. They can either sink boreholes or opt for water deliveries to their homes.

es were caught up in the politics of conflicts between Zimbabwe African National Union Patriotic Front(ZANU-PF) and Movement of Democratic Change (MDC) in local governance issues. In 2003,residents voted for executive mayor Elias Mudzuri, of the MDC but was shortly replaced by the Sekesai Makwavarara Commission appointed by government. The authority to distribute water was later handed to the Zimbabwe National Water Authority (ZINWA) in 2005. Instead, water supply deteriorated under ZINWAôs management. During this period, the country experienced the worst cholera epidemic outbreak that recorded 4 047 deaths and 191 164 reported cases between 15 August 2008 to 17 March 2009 (OCHA, 2009). These changes failed to deliver a consistent and adequate water supply to residents.

The City of Harare took over again the management of Harare water supply and still using the existing water supply system which is inadequate for the level of current demand. During that period, there was an economic meltdown in Zimbabwe and the economy of shrunk significantly. The economic meltdown also affected donor supported initiatives for water supply services as most international donors withdrew their assistance programmes to Zimbabwe. Local authorities were not spared with the economic meltdown which increased its intensity around 2007/8. This period also witnessed a high number of defaulting ratepayers which affected efficient operations of municipalities which resulted in the decline in the service coverage and quality of water services and in some cases, an absolute breakdown of social service delivery.

Erratic and non-supply of water in high density areas to this day remains a social problem in Harare despite institutional changes that have taken place over the years to address the water problems. The City of Harare and the Government of Zimbabwe have not satisfactorily resolved the water supply problem and it is an issue which the study attempts to interrogate.

Erratic and non- supply of water has mostly affected women and young children at household level as they bear the drudgery of collecting water at the expense of other productive tasks. The time lost in fetching water can be very well translated into financial gains, leading to a better life for the family. Children are missing school or are late for school and this eventually has a bearing on low literacy levels. Inadequate water supply impacts on the health of the population. When water is not clean and not meeting World Health Organisation (WHO) standards it poses a significant health risk. When there is lack of constant supply of portable water familiesô dietary practices are also affected.

Scarcity of portable water has consequences on the national level in the sense that productive hours are lost through water collection responsibilities. Governmentôs financial resources are affected as more money will be directed to contain cholera outbreaks from time to time rather than being directed to other productive activities. If water problems persist, it is unlikely that Zimbabweôs chances of meeting the much-vaunted Millennium Development Goals (MDGs) target on water are virtually non-existent because of the collapsing water infrastructure.

en advantage of the non availability of water to engage in profitable business of selling water to desperate residents. These water merchants are charging exorbitant prices for the precious liquid.

In light of such problems, the study will attempt to assess the cityôs public water supply which is placing a disproportionate burden on residents in the high density suburbs as they struggle to access water for domestic use and sanitation.

1.3 Objectives of the study

The study seeks to:

a) describe the water delivery system in the high density suburbs in Harare.

b) examine the strengths of the water delivery system.

c) examine the weaknesses of the water delivery system

d) examine the effects of the water delivery system to members of the society.

e) propose ways of improving the water delivery system in high density suburbs.

1.4 Research questions

a) How is the public water supply in high density suburbs?

b) What are the strengths of the water delivery system?

c) What are the weaknesses of the water delivery system?

d) What problems are encountered by the erratic and non-supply of water in high density suburbs?

yed to effectively address the problem of erratic and non-supply of water in high density suburbs be addressed

1.5 Hypothesis

Erratic water supply perpetuates community and social problems in high density suburbs.

1.6 Justification of the study

At international level, water supply to citizens is a topical issue that has attracted attention though the United Nations Millennium Summitof 2000. The third MDG goal, which relates to water aims to halve, by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. Governments are under pressure to address this target as water is fundamental to health, survival and development. At national level, erratic and non-supply of water to urban dwellers has become a major problem in the local authority discourse in Zimbabwe as many urban councils are failing to maintain a sound public water supply system due to numerous financial and infrastructural challenges.

The findings from this study will be useful in filling in the timing gap in local government literature as not much has been written on the social problem as it emerged from 2008. There is literature available on water crisis in urban areas but little has been written on the challenges presented by the current water delivery system and how residents are coping. The water crisis has emerged during an important period in the history of Zimbabwe which marked the advent of the Economic Structural Adjustment Programme (ESAP) to the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST) phase through to the economic meltdown period of

udy will build up on existing literature on the pattern of water delivery services during the meltdown period.

The study will fill in a research gap in that it will be a triangulation of both qualitative and quantitative methods. The mixed methods approach to research is to draw from the strengths and minimize the weaknesses of the quantitative and qualitative research approaches. While the quantitative method provides an objective measure of reality, the qualitative method allows the researcher to explore and better understand the complexity of a phenomenon.

1.7 Delimitations

In terms of geographical demarcation, the study was conducted in Budiriro high density suburb. Budiriro is an urban residential settlement formed around 1988 and is about 10 kilometres west of the city centre and has grown drastically over the years yet its water reticulation infrastructure has not matched the expansion to meet the daily demands. The constituency is made up of three wards namely 32, 33 and 43 with a population size of about 130 000.

The study focused on Budiriro which was the hot-spot for the first cholera cases of August 2008 were identified there before spreading to other areas. The study focused on the period from 2008 to 2013. This study will be an ideal follow up on the water delivery system in Budiriro after 2008 to assess if there have been any notable improvement and changes.

The study is mainly exploratory. The vulnerability of residents in high density suburbs in the absence of a steady supply of water has not been given much attention. High density suburbs

ly when water supplies are limited. Women and children are worst affected and this study highlighted the nature of womenôs experiences as they are the ones tasked with collecting water for household use.

1.8 Limitations

Water is a highly contested and sensitive resource, and fast becoming controversial. Getting information from institutions especially Harare Water Distribution was problematic.Some respondents failed to provide true informationfor fear of victimization, for instance employees at the Highfield Water Works. The research assured respondents that the research was purely for academic purposes.The researcher also relied on publicationsfor information relating to statistics.

1.9 Organisation of the Study

Chapter 1: Introduction.

This chapter presents an introduction; background to the study, statement of the problem, objectives and research questions. It also presents the hypothesis, justification of the study, limitations and the delimitations.

Chapter 2: Literature Review and Theoretical Framework

This section provides the review of literature and the theoretical framework.

Chapter 3: Methodology

The chapter comprises the research methodology in the study.

Chapter 4: Major Findings

ata are presented in this section.

Chapter 5: Conclusions and Recommendations

This section consists of conclusions and recommendations of the study.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter reviews literature relevant to the study on water delivery systems in urban areas in Sub-Saharan Africa. The Advocacy Coalition Framework (AFC)will be used as a theoretical framework to addressthe social problem of erratic and non-supply of water in high density suburbs. This chapter will also compare the literature on water delivery systems and point out areas of agreement and diversion on the current water supply problems in urban areas.

2.2 Literature Review

2.2.1 Water Scarcity Defined

Generally, water scarcity is a situation where water supplies are limited to meet the needs of people. Water scarcity is mainly a result of an imbalance of supply and demand under prevailing institutional arrangements (Winpenny 1994 and Ola 2009). According to Kumar (2013), water scarcity can be classified from two points as physical scarcity and economic scarcity. Physical scarcity occurs when there is not enough water to meet demand, for instance erratic supply of water and unequal water distribution. Economic scarcity relates to when there a lack of investment and proper management of water supply to meet the demand of people.

Winpenny (1994) and Bouguerra (2006) presents some of the symptoms of water scarcity which include a growing conflict, competition for water, declining standards of reliability and service. Water scarcity is exemplified by situations where consumers have to carry heavy containers of water for several kilometres to meet household needs, increasing health problems due to water pollution, an increase in incidences of water-borne diseases and a general decline in water quality.

sed system is one where there is a threat to its capacity to continue proving adequate water supply in quantity and quality to households and communities. Pelser (2001) highlights that in situations where water supplies are limited, people with the lowest status and wealth in the social hierarchy are most affected. Pelser (2011) observes that in developing countries, women and children, especially girls are vulnerable to water scarcity as they are the major water collectors in households. According to Rosen and Vincent (1999), most studies of water supply in sub-Saharan Africa take for granted that almost all water is carried by women and girls.

2.2.2 Water as a Human Right

The WHO General Comment Number 15 on the Right to Water of November2002 stresses that ñThe Human Right to Water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.ò (WHO 2003). Therefore, the government must ensure that the citizens have adequate and safe water supplies. Many social problems are averted when water is accessible and affordable.

Christopher Rowan (2009:3) notes that the right to water must be acknowledged to encourage the international community and national governments to continue to provide this basic need and at the same time to translate this need into international and national obligations. The right to water touches all aspects of national development including health, education, agricultural productivity, opportunities for women and girls and economic productivity. These issues experience much overlap. Therefore, an improvement to the availability of clean water has the potential to solve a number of developmental problems for any society.

service and quantity of water collected to meet household requirement as prescribed by the WHO.In most developing countries, physical infrastructure for water delivery has been installed but the greatest challenge has been to ensure that citizens have a constant supply of water.

Table 2.1 - WHO: Service Level and Quantity of Water Collected

Service Level	Distance/ Time	Likely volumes of water collected	Needs met	Intervention priority and actions
No Access	More than 1 kilometre. More than 30 minutes round trip	Very low (often below 5 litres per capita per day	Consumption cannot be assured. Hygiene practice compromised. Basic consumption may be compromised	**Very High** Provision of basic level service
Basic Access	Within 1 kilometre/ within 30 minutes round trip	Average unlikely to exceed approximately 20 litres per capita per day	Consumption should be assured. Hygiene may be compromised. Laundry may occur off-plot ï i.e. away from home	**High** Hygiene education Provision of Intermediate level of service
Intermediate Access	Water provided on plot through at least one tap (yard level)	Average of approximately 50 litres per capita per day	Consumption assured Hygiene should not be compromised Laundry likely to occur on-plot ï i.e. within the confines of the household	**Low** Hygiene promotion still yields health gains Encourage optimal access
Optimal Access	Supply of water through multiple taps within the house	Average of 100-200 litres per capita per day	Consumption assured Hygiene should not be compromised Laundry will occur on-plot	**Very Low** Hygiene promotion still yields health gains

Source: Howard G. Batram, **Domestic Water Quantity, Service Level and Health,** Geneva, World Health Organisation, 2003

ter per person per day is ñthe amount needed to satisfy metabolic, hygienic and domestic requirementsò (WHO 1996). The WHO guideline on domestic water quality indicated by Batram (2003) is facing challenges in developing countries as at the basic level of service fails to afford an a individual approximately 20 litres per day.

Gleick (1998) estimates that 25 litres per day is enough for personal consumption and sanitation, but that another 25 litres per day is needed for bathing and food preparation. In industrialized countries, daily per capita water use far exceeds this. A survey by the World Bank (1997b) noted that Switzerland, which uses the least water per capita of all the industrialized countries, has an average daily per capita use of 110 litres, Japan is 342 litres and for the United States 668 litres.

Rosen and Vincent (1999) in their paper found that per capita use consistently decreased as the number of people in the household increased. In eastern Africa, households with 4-5 members averaged a little over 10 litres per person per day, while those with more than 12 members averaged just 7 litres person per day. In Malawi, two-person households used at least 20 litres person per day, while those with eight members never exceeded 10 litres per person per day.

In any case, one of the conclusions that can drawn is that unreliable water supply creates a situation in which residents hoard water by establishing storage facilities when water becomes available to meet their daily water requirements. However, this common strategy creates yet another problem as water may be contaminated during transportation and storage and at point of use thus, posing a great health risk. In practice, it is evident that per capita water use is far too low to maintain the level of personal and domestic hygiene needed for good health.

A number of international frameworks on water management have taken place which included The Mar del Plata Conference (1977), International Conference on Water and the Environment in Dublin (1992), The United Nations Conference on the Environment and Development UNICED,(1992) and the World Water Forum, Hague (2002). Rowan (2009:4) noted that these conferences have ñidentified the need for political commitment and involvement from national governments to the smallest communities.ò The provision of water to citizens is a pre-condition to achieve the objective of ending poverty and disease to ensure development. Therefore, governments that ascend to such declarations must ensure that citizens have adequate, safe, accessible and affordable water to address community and social problems related to provision of water. Access to water reduces poverty and enables improved health, improved nutrition and human development.

These platforms set out main principles which are still relevant today in addressing water management processes, project and programmes. These conferences have sharpened peopleôs perceptions of the water crisis and have broadened understanding for a proper response to problems associated with inadequate water supply. A number of global projects such as UN ï Water, The Water Project, ACP-EU Water Facility were created to develop and implement projects that improved water management and governance in African, Caribbean and Pacific countries. Bougerra (2006) pointed that these agencies are merely implementing agencies whose roles are to strengthen coordination and coherence among other entities dealing with freshwater.

According to Schmandt (2001), water stress and water scarcity affect many regions today and will become more pronounced as the world population reaches 9 to 11 billion. Kumar (2013) notes that this situation is expected to worsen due to population growth, poor investment in water supply infrastructure, climate change and management shortfalls.

Drought is a major cause of water scarcity. It is the condition of abnormally dry weather in a region where rain is usually expected and can last from a few weeks to many years (Backebergand Viljoen, 2003: 3). Drought leads to a reduction of water levels, reduced water quality and decreased water resources resulting in scarcity of drinking water and more water borne diseases surface.

This phenomenon affects the poor to an overwhelming extent. It is the poor who usually experience the loss of life, property, livestock, livelihoods, crops, as well as the diseases that often result. Among the poor, women and children are the most vulnerable. According to Kunstand Kruse (2001:4), droughts affect women by reducing the domestic water supply and has negative impact on womenôs time management. When nearby wells and water sources run dry, women have to search for water further. The greater the distance, the more time women need to fetch water at the expense of other productive activities.

Another reason for the critical water situation in all world regions is climate change. The United Nations Population Fund(UNFPA) (2001) and Winpenny (1999) agree that global warming is occurring and increasing. An increase in drought and water scarcity is an obvious consequence of warmer temperatures (Pelser 2004). Recent estimates by the UN World Water Development

ange account for about 20% of the increase in global water scarcity. African governments are also seen as least prepared to respond proactively to changes resulting in climate change yet the continent is the one hardest hit by climate change (Leonard 2003).

A change in population size, growth, structure and distribution does have implications for natural resource base,in this case, water. Population growth is a large contributor to water scarcity and an increased demand on water resources. Between 1990 and 2000, the global population increased by 15 percent from 5.27 to 6.06 billion. Ashford (2004) estimates that population growth in Africa alone was almost double the global average. The rising concentration of global population especially in urban centres presents both challenges.Domestic municipal water use is directly related to the quantity of water withdrawn by populations in cities and towns. Therefore, rapid urbanisation in the developing world makes it difficult for urban settlements to meet their water demand.

According to the figures by WHO/UNICEF Joint Monitoring Programme (JMP) Report of 2006 for Water Supply and Sanitation for the Zimbabwe country profile, there has been an increase in population growth in urban areas between 1990 and 2008 from 29% to 37% that has not matched with coverage of improved water supply, the percentage of improved drinking water coverage has remained at 99% during the period noted.

UNESCO (2000) notes that industrial development has had a huge negative impact on freshwater supply. The development of industry also results in water pollution as much of the intake is

l water courses. Many developing countries undergoing rapid industrialization are now faced with the full range of modern toxin pollution problems, while still struggling with the traditional problems of poor water supply (Bouguerra, 2006). These high volumes of industrial effluent often overwhelm municipal treatment capacity.

In many cases, a countryôs water potential is not realized because of financial shortages, unbalanced power relations and institutional failures (Winpenny 1999). Water is potentially available, but is not being fully captured because of the way in which water provision is organized and managed. UNFPA (2001:12) states that the underdevelopment of water infrastructure affects the availability of water in many countries.

Mapira (2011) noted that many water authorities are short of funds to invest in improving and expanding their systems, or even to maintain and operate their existing ones. Governments are failing to recover their costs and to collect all of what is due to them. Many public-owned water institutions are inefficient and some are corrupt. This scenario is affecting the management of water.

The root cause of inadequate domestic water supply in most developing countries lies mostly in the lack of commitment from both the governments and local authorities to improving the situation. Folifac (2007:6) in his article in the *African Water Journal* pointed that many countries have attractive water policies on paper but have not been able to implement due to lack of political commitment in moving resources in the right direction. UN World Water Development Report 1 (2003:30) states that the water crisis is ñessentially a crisis of governance.ò

scarcity is not just an inevitable natural phenomenon, but is to a greater extent heavily influenced by human behaviour and government policies. Winpenny(1999: 2) explain the causes of water scarcity in terms of human behaviour that can modify the physical environment in a way that makes water scarcer.

According to UNDP (2003: 7) to ensure better management, water should be treated as an economic, social and environmental good. All these aspects are interrelated and when policies focus on only one of these aspects the others suffer. Water policies should focus on the management of water and not just on the provision of water.

2.2.5 Emerging Themes

Stewart and Gray (2009:1) quotes Knighton (2002:13) the problem is that ñThe world water crisis is a crisis of governance ï not of scarcity.ò The United Nations Development Programme (UNDP) Report (2006) on the global water crisis ascends to this remark stating that the ñroots of the crisis in water can be traced to poverty, inequality and unequal power relationships, as well as flawed water management policies that exacerbate scarcity.ò

For decades, the crisis of bad governance has been discussed and there is a need for authentic financial and political commitment to manage water supply to urban dwellers.The greatest challenge being faced by water utilities are lack of human resources, lack of financial support, weak policy frameworks, weak management and monitoring systems. All these factors have resulted in the deterioration of physical infrastructure, thus, crippling its capacity to supply adequate water.

an Africa over the years have neglected the aspect of the certain costs related to poor water supply. Rosen and Vincent (1999) identified a number of costs such as productivity costs, health costs, nutritional costs and time costs of collecting water that have been neglected by research studies on inadequate water supply.

This chapter has identified a number of challenges in urban water supplythat require policy and institutional measures. The issues are the rapidurbanization, industrial development, droughts, and pollution of waterways by industries, and inefficiency of water use among different users. In view of these challenges, water policy and institutional structures must be made appropriate to the emerging social and economic contexts.

2.2.6 Water Management in Zambia and South Africa

This study will explore the case of Zambia and South Africa to assess the water delivery system.

The Case of Zambia

The problem of poor access to clean and safe water in Lusaka and Kitwe, Zambia is typical of the wider picture for urban poor in Africa. The Zambian National Water Policy of 1994 led to a new institutional framework for the sector which was formally adopted in the Water Supply and Sanitation Act (WSS Act) in 1997. Under the Zambian Sixth National Development Plan (2011-2015), Chitonge (2011) notes that focus was on water resource management, regulation, decentralisation, cost recovery, human resource development, adoption of appropriate technology and increased sector spending.

tical Office (CSO) in 2002 reported that slightly lower numbers of 41% of the urban areas enjoyed access to clean safe water. Local government is responsible for provision of domestic water supply in urban areas. It also inherited a water and sewer infrastructure that has failed to service the ever growing population in the urban areas. The dysfunctional water system has also resulted in perennial cholera outbreaks. Erratic water supply has hit several townships causing residents and in particular women to wake up in the hours of the morning to search for water.The few selected households that have were fortunate to receive the rationed water, only had water running from which normally start to run for about an hour or two. (Lusaka Times, April 2013).Communal taps were erected but most of them were later disconnected because residents failed to pay for water bills to Lusaka Water and Sewerage Company (LWSC) who manage water services.

The main causes of erratic water supply were identified as the increase in population which overstretched the old water supply infrastructure which remained stagnant. Residents also blamed long hours of electricity load shedding as they disrupted water pumping. They resort to drawing water from unsafe shallow well thus, exposing themselves to water borne diseases.

There is also the problem of high charges levied to buy water. The LWSC have a prepaid card voucher which cost about K8 000 (USD2) for five 20 litre buckets. For the wheel barrow pushers, it would be brisk business as they take advantage of the situation and charge exorbitantly for transporting a bucket of water and a negotiable fee for drawing water.

ommercialisation of water supply in a bid to improve performance and efficiency in water supply. A number of measures were adopted which included regional decentralisation of the water supply network, creating autonomous public companies to operate the system, using new management practices that emulate the private sector techniques, using commercial tariffs in setting tariffs among others (International Poverty Centre, 2008). Another strategy that was used to address water woes in urban areas included the setting up of water supply kiosks. Water kiosks became popular as Dagdeviren (2008) in a case study on the Zambian water reform programme noted that there was a decline in the number of residential connections after commercialisation forcing residents to rely on water kiosks and boreholes. Commercial Utilities increased the capacity to provide and improve water services compared to the time when water services were provided by local authorities. In particular, Chitonge (2011) notes that the number of service hours had stabilised to around 15 hours per day

However, in some areas the infrastructure has been neglected under these reforms as evidenced by high levels of unaccounted for water through leakages. The governmentôs financial allocation to the water sector has remained minimal making it difficult to rehabilitate the existing infrastructure and expand the network to increase water coverage in urban areas. Thus, IPC (2008) concludes that if investment needs are unmet, water utilities will continue in a ñvicious circleò of low investment levels, high system losses, unaffordable tariffs and low access levels. This circular process counteracts the systemôs potential to attain the social policy objects of the reform programme especially in an environment where poverty levels are high.

South Africa has made great strides in reducing inequality pertaining to access to water. Folifac (2007) attributes this achievement to the governmentôs commitment to address water challenges and formally recognizing water as a human right. According to Folifac (2007) prior to 1994, there was great inequality in water services between different groups where only 45% of blacks had piped water against nearly 100% of the other groups. There was an absence of a coherent policy and institutional framework on water services, a lack of political will and financial resources to address the challenges of inadequate water supply. South Africa addressed the challenges through a number of initiatives.

A number of reforms, in water policies and institutions took place namely; Water Service Policy (White Paper) 1994, Water Services Act (WSA) of 1997, National Water Policy of 1997, National Water Policy of 1998, National Water Resource Strategy of 2004 and the National Water and Sanitation Programme. These policies and programmes in water management had the total backing of the government.

The national government created an enabling environment through guidelines, development strategies, supporting the local authorities and providing grants for the support of basic infrastructure. In terms of WSA, the standard basic water supply for high density areas were; a minimum quantity of portable water of 25 litres a person which should be available within 200 metres walking distance and that water must be available 98% of the time.

te sector in the development of improved water supply. In 1996, the government entered into partnership with the private sector to undertake Build, Operate, Train and Transfer (BoTT) services. The BoTT approach had its challenges as it faced resistance from residents who were reluctant to pay for water. Massive disconnections took place, thereafter, where approximately 10 million people were affected by disconnections and supply interruptions which led to an outbreak of worst cholera epidemic in South Africa (Bouguerra 2006:100).

The government has also encouraged public participation in its water supply sector. There are wider consultations with interested parties with special focus on previously disadvantaged groups. This approach has instilled a sense of ownership and responsibility amongst the public.

The case of South Africa illustrates the importance of political will of top leaders. Folifac (2007) cites the case of Cameroon where a parliamentary act on water was adopted in 1992 with all provisions but lacked political commitment to enforce it. If political leaders are committed to act on policies adopted then, financial resources will be channeled into the right direction to improve water supply services.

2.3 Theoretical Framework

The study adopted the Advocacy Coalition Framework (ACF) to address the social problem of erratic and non-supply of water in high density areas. ACF was developed by Paul Sabatier and Hank Jenkins-Smiths in 1993 as a theoretical framework to analyse intense conflict in policy processes.

multiple actors. ACF would address the level of interaction and coordination of the different actors such as residents, residents associations, local authorities, business leaders, non -governmental organizations, humanitarian and international community agencies, policy makers, legislators, researchers, journalists, civil society groups and government to address the urban water supply problems.

ACF therefore, presents the view that when actors in the water sector join hands there will be improvement of water service delivery to the citizenry which results in the reduction of community and social problems. Women and children are forced to spent time in search of water for domestic use at the expense of other productive tasks. Thus, if water is safe and accessible the women can direct their efforts to productive tasks. When water is accessible, childrenôs education is not disturbed, thus, improving literacy levels. Health matters are manageable when water is safe and available. Financial resources are directed to other productive activities rather than attending to cholera outbreaks.

CONCLUSION

The task of addressing water supply problems facing urban areas cannot be left the governments alone. Advocacy and lobbying actions are, therefore, necessary to try and influence decision-making by politicians and key people in government to improve water service. Decision making processes must include all stakeholders in devising strategies to improve water supply.

ODOLOGY

3.1 Introduction

This chapter interrogates the method used to assess the water delivery system in Budiriro high density suburb. The chapter also presents the objectives, researchdesign, target population, sampling techniques, data collection methods and data analysis techniques used in the study.

3.2 Research Design

The study made use of multiple case study research design. The multiple case study used four cases of analysis namely; municipal governance in Harare from 1990s, water management under Zimbabwe National Water Authority (ZINWA), the Operation Murambatsvina of 2005 and the cholera crisis of 2008. The multiple case study design was appropriate to this study because it allowed for a more detailed level of inquiry when assessing water delivery system in high density suburbs. A case study research methodology was preferred because it relies on the use of multiple sources of information which adds breadth and depth to data collection. The use of many cases is beneficial as it will assist in bringing a richness of data together which will eventually contribute to the validity of the study.

3.3 Target Population and Sampling Techniques

3.3.1 Target Population

The study was conducted in Budiriro high density suburb. According to the constituency profile by the Parliament of Zimbabwe (2005), Budiriro constituency is made up of three wards with a population of about 130 000. The population is almost evenly distributed in the three wards. Most residents are found in Ward 33 with 36%, followed by Ward 43 with 34% while the remaining

made up of a total of 32 929 households and the average size of a household is 3.9. The study focused on households in the constituency as the main source of data. Budiriro was selected as a research site because the first cholera cases of August 2008 were identified there before spreading to other areas. The study was a follow up on the water supply situation after the cholera outbreak.

The study focused on women and children who are the traditional water collectors. The focus of study was to document the unexplored nature of water collectorsô experiences resulting from the current water delivery system. The study also considered men and young boys who have emerged as a new category of water collectors engaging in profitable business of selling water to desperate residents.The study also chose other actors in the water delivery services namely officials within the City of Harare, Harare Residents Trust and the academics to obtain in-depth investigation on the water delivery system in high density suburbs.

3.3.2 Sampling Techniques

The sample size was made up of 60 participants who were drawn from households in Budiriro, City of Harare officials and Harare Residents Trust. The study used various sampling techniques.

3.3.2.1 Stratified Sampling

The study used stratified sampling to select respondents for the survey. The respondents described the current water delivery system. The target population was divided into three subgroups based on the three wards of the constituencythen randomly select the final subjects proportionally from the different strata to form a random sample for the study. Stratified sampling technique was

groups within the population are represented. The common strata used were age, gender and socio economic status.

3.3.2.2 Purposive Sampling

The study used purposive sampling technique.Purposive sampling was preferred because respondents who were hand-picked had specific characteristics. Purposive sampling ensured that a balance of group sizes when multiple groups are to be used in the study and that respondents would be better placed to provide valuable information.

In the first instance, the focus was on women and girls children. The technique, therefore, excluded women who have full-time jobs and older school going girls who are not responsible for water collection duties. Respondents provided information on what is occurring within the current water delivery system and proposed ways to address the needs of the groups.Data was collected through questionnaires, in-depth interviews, observations and focus group discussions.

The study used purposive sampling to select key informants who are not directly affected bythe water problem but were very crucial to the interest of the study. The group included officials in Harare Water, City of Harare, Budiriro District Officer, academic and representatives from civic organisations. Data collection was done through key informant interviews. The sample provided rich and logic information on the water service delivery in terms of challenges encountered and efforts being made to improve water supply in Budiriro high density suburb.

The study also utilised convenience sampling to select respondents at household level. Respondents were selected based on their accessibility or convenience to the researcher. Convenience sampling was preferred because it is aninexpensive way of ensuring sufficient numbers of the study. In this case, anyone found at the selected households was asked to participate in the study and not necessarily the water collectors. Information was collected through in-depth interviews.

3.4 Data Collection Methods

3.4.1 Quantitative Methods

3.4.1.1 Survey

A survey was used to describe the water delivery system in the high density suburbs in Harare. The surveyexamined the strengths and weaknesses of the current water delivery system. A household questionnaire was administered to the household water collectors and household heads to describe the water delivery system. The questionnaire used a combination of closed and structured questions.

The study used the survey becauseit is cheaper and the representative sample is widely spread. Questionnaires will enable the researcher to reach many respondents within a short period of time.

3.4.2 Qualitative Methods

3.4.2.1 Key Informant Interviews

n the study. These were done with officials in the City of Hararewho were familiar with the social phenomenon under investigation. Interviews were conducted with the Harare Residents Trust (HRT) to obtain information on their role of facilitating engagement among council officials, service providers, government and the residents to improve on water service delivery.

Interviews with the key informants interrogated the water delivery system in the high density suburbs in Harare. Interviews were conducted to examine the strengths, weaknesses of the current water delivery system and extracted information on proposed ways of improving the water delivery system in high density suburbs. The study utilised the Key Informant Interview Guide with open ended questions. Key Informant Interviews were preferred because the response rate is high and there was a potential for collecting detailed information through probing further.

3.4.2.2 In-Depth Interviews

In-depth interviews were conducted with respondents who were directly affected by the problems of non-supply and erratic water supply in high density suburbs. The respondents for the in-depth interviews were water collectors and household heads. In-depth interviews allowed respondents to describe the water delivery system in the high density suburbs, examine the effects of the water delivery system to members of the society and propose ways of improving the water delivery system in high density suburbs. The instrument that was used was anIn-Depth Interview Guide with a mixture of closed and open-ended questions.

This study used In Depth Interviews to gain greater knowledge and insight than focus groups and surveys. The researcher had plenty of time to probe and obtain in-depth responses since

ves more freely. The method of the in-depth interview was appropriate when dealing with sensitive and controversial issues as they uncovered valuable insights on what was happening on the ground.

3.4.2.3 Focus Group Discussions (FGDs)

Focus Group Discussions were used in the study. The discussions described the water delivery system in high density suburbs in Harare, examined the effects of water delivery system to members of the society and suggestedways of improving water delivery system in high density suburbs.

Four FGDs were conducted to identify trends and patterns in perceptions and opinions. The discussions took place at water points with about 6-8 water collectors at a time. They were guided by a Focus Group Discussion Guide. FDGs enabled the researcher to gain a larger amount of information in a shorter period of time.

3.4.2.4 Observations

The study utilised the observation method to observe objects, individuals, groups and events. Personal observations were made when visiting households and water points. The observational method extracted information on the effects of the water delivery system to members of the society. The observational method was appropriate in this study as it enabled the researcher to directly observe eventsand behaviours then comparedwith responses obtain from other data collection methods to eliminate cases of exaggeration by respondents.

The study also used the documentary research method to supplement information that was collected though surveys, in-depth interviews, key informant interviews and observations. The study referred to documents that included newspapers, journals, government publications, policy statements, annual reports and minutes of meetings.

Information obtained from documentary method described the current water delivery system, outlined the effects of the water delivery system on residents and suggested ways to improve water supply. Documentary analysis was preferred in this study because it enabled the researcher to get access to information that was difficult to get earlier on. For instance, some people were not willing to be interviewed.In some cases, some respondents were difficult to track down especially the Distribution Manager at Harare Water Distribution Division of the City of Harare.

Documentary analysis often made it possible the collection of data over a longer period of time as well as larger samples than what was be collected from questionnaires or interviews.

3.5 DATA ANALYSIS TECHNIQUES

3.5.1 Content Analysis

Content analysis was utilised. Content analysis analysed data from documentary sources such as books, journal articles and newspaper articles. Content analysis facilitated identification of patterns and trends of the water delivery system.

Thematic analysis was used to identify and analyse patterns (themes) within data collected. A limited number of themes were identified, for instance, water distribution patterns, frequency of water disruptions, pressure of water, responses to breakdowns.

3.5.3 Cross Case Analysis

Cross case analysis was also be used to analyse data in the study. Cross-case analysis was preferred because it mobilized knowledge from individual case studies and revealed new dimensions of the social problem under investigation. Cross-case analysis facilitated the comparison of commonalities and differences in the cases, events, patterns and processes used in the study.

3.5.4 Statistical Package for Social Scientist (SPSS)

The study used the Statistical Package for Social Scientist (SPSS) to record data captured by the questionnaires and interviews. Data was collated for purposes of establishing common trends, patterns or themes, frequencies and then presented using graphical methods to analyse findings and test the hypothesis.

3.5 Conclusion

The chapter has presented the various sampling techniques, data collection methods that were utilised in assessing the current water delivery system in high density areas. The use of a variety of techniques and data collection methods complemented each other in the study.

FINDINGS

4.1 Introduction

This chapter presents findings from documentary and field research on the water service delivery in Budiriro high density suburb. This chapter assesses the strengths, weaknesses and problems of the current public water supply system. The findings also shed light on strategies that could be employed in the short term and long term mitigation of water woes in high density suburbs.

4.2 Demographic Data

This section presents the demographic and socio-economic characteristics of the respondents.

Table 4.1: Demographic and socio-economic characteristics of respondents in the survey

Status of the Respondents	
Characteristic	**Percentage**
SEX	
Male	46.7
Female	53.3
Total	**100.0**
AGE	
Below15 yrs	2.2
16-25 yrs	17.8
26-35 yrs	42.2
36-45 yrs	20.0
46-55 yrs	13.3
56-65 yrs	4.4
Total	**100.0**
HOUSEHOLD SIZE	
1-2 people	11.1
3-5 people	57.8
6-9 people	22.2
10+ people	8.9
Total	**100.0**
PRIMARY SOURCE OF INCOME	
Formal employment	46.7
Small Business	17.8
Remittances	4.4
Vending/ Informal	20.0
Cross-border business	4.4
Other	6.7
Total	**100.0**
PERSON RESPONSIBLE FOR FETCHING WATER	
Male	4.4
Female	44.4
Both	51.2
Total	**100.0**

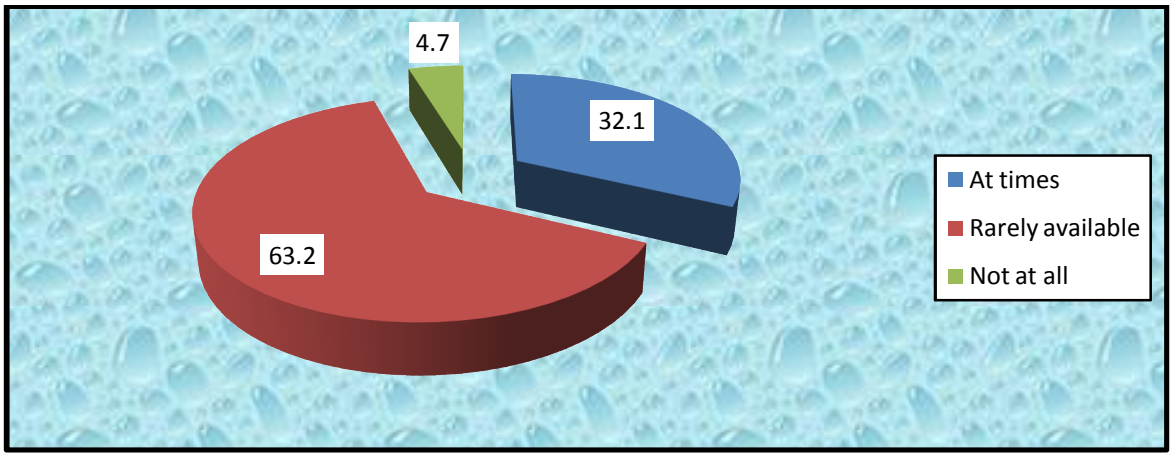
xpected 60 responses, 45 (75%) responses were obtained. The study revealed that most respondents were in the 26-35 years age group who accounted for 42.2%. These are the major water collectors in the household. 51.2% of the respondents noted that in the household, water collection is a shared responsibility between males and females. Children below the age of 15 years account for 2.2% indicating that there are few children involved in water collection duties in the area.

Most respondents are in formal employment (46%), 4.4% rely on remittances while the rest are involved in running small business, cross-border trading and vending. Water collected from boreholes is for cooking and drinking. No one in the area is engaged in the profitable business of selling water to desperate residents.

In addition to the questionnaires, three focus group discussions were held and key interviews were held with the Harare Residentsô Trust, ward committee member, officials at Highfields Water Works and a researcher in Human and Women's Rights and water issues.

4.3.1 Current water delivery system in Budiriro high density suburb.

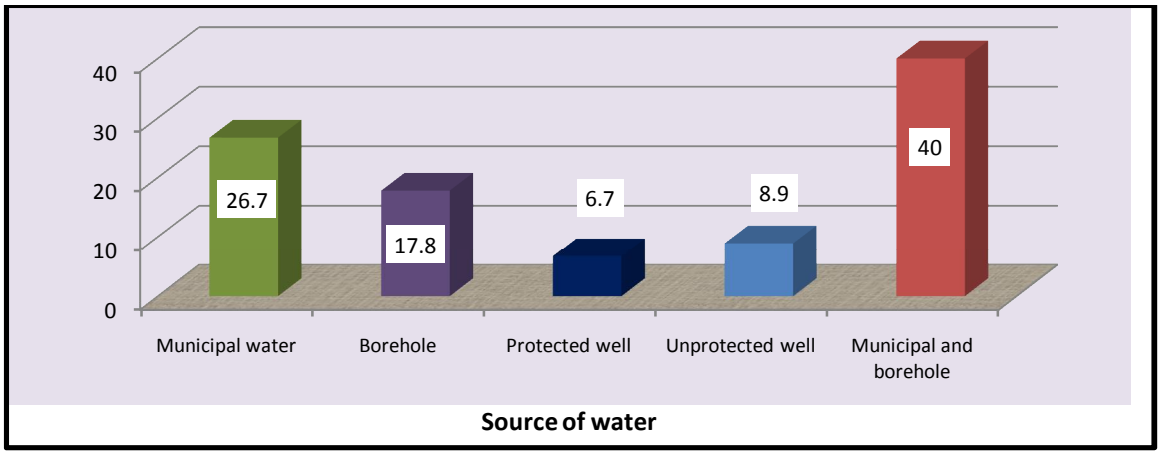
Figure 4.1: Availability of municipal water in the household



N=45

Respondents to the questionnaire noted that water supplies in Budiriro high density suburb are erratic, irregular, and inconsistent. 63.2% of the respondents reported that there is a high frequency of water disruption in the area. Water is reported to trickle down late evenings or early hours of the morning forcing residents to wake up to draw enough water for use the following day. When the water is supplied, it is of a bad quality with dirty visible particles in it and therefore, not encouraging to drink. While the City of Harare maintains that its water meets WHO standards it is evident that the water supplied is shunned by most residents. It is also evident that in residential areas water disruptions are high.

e household



N=45

The majority of the respondents (40%) in the survey rely on both municipal water and boreholes. Most boreholes in Budiriro high density suburb are functional.They also have other sources namely: protected wells (6.7%) and unprotected wells (8.9%). In the focus group discussions at public boreholes, residents reported that boreholes are the main source of drinking water and cooking as they have lost confidence in the quality of municipal water.Respondents who get water from unprotected wells only do so when nearby boreholes are down for days.

The Budiriro District Councilôs ward committees are vibrant in the area. For example in Budiriro 3, Ward 33 committee ensures that boreholes are functional in the area. An interview with a committee member established that when boreholes are not functional they mobilise funds to repair them in the shortest possible time rather than wait for council who take long to attend to faults. The business community around that area has assisted also in borehole repairing.

residents are taking advantage of the current rainy season to harvest water. Water is collected in drums and buckets. Besides lessening the number of trips to the borehole, residents preferred harvested water for cooking as it is clean water.

Table 4.2: Longest period when municipal water is not available

PERIOD	PERCENTAGE
1-2 days	15.6
One week	40.0
More than 1 week	28.9
1-2 Months	4.4
More than 1 month	11.1
Total	**100.0**

N=45

Respondents in the household survey indicated that 15.6% of the respondents could go for a day or two without water supplies. 40.0% of the respondents indicated that they could go for a week without water. In some parts of Budiriro, 15.5% of the respondents can have more than a month without water in their homes.

4.3.2 The strengths of the current water delivery system.

Respondents in the three focus groups discussions criticised the water delivery system and noted that at the moment there were no strengths to talk about. However, an official at the Highfields Water Works pointed that in most houses, a physical infrastructure for water delivery is in place. Residents can, therefore, have continuous water supply once new pipes are installed.

the water sector in Zimbabwe has witnessed a favourable response from the international donor community which is a stepping stone in addressing the current water problems. A Multidonor Trust Fund supported by Norway, Denmark, Sweeden,Germany, Switzerland, UK and Australia has provided funding for policy formulation and rehabilitation of water infrastructure coordinated by the World Bank and African Develpment Bank. In 2013, City of Harare secured a US$144 million loan from China Import and Export Bank for the rehabiliation of sewer and reticulation systems.The revamping of the treatment plant is expected to boost water production that will see Morton Jaffray Waterworks producing over 700 megalitres of treated water daily. This development will ease water shortages in the city.

4.2.3 The weaknesses of the water delivery system

Respondents in focus group discussions, the household survey and key informant interviews noted that there were several weaknesses in the current water delivery system and largely disappointing to the citizenry.

An interview with an engineer with Harare Water established that water challenges facing Harare are largely a result of ageing water pumps. He acknowledged that most of the water disruptions are a result of old pumps at the main treatment plant, Morton Jaffray Water Works. These water pumps have exceeded their economic lifespan which is usually 20 years.

Mrs. Elizabeth Rutsate, a researcher in Human and Women's Rights and water issues in the Faculty of Law pointed it clear that there is adequate raw water from surrounding dams which supply City of Harare. The main problem is the dilapidated infrastructure.She said government

and sewerage infrastructure development over the years. When it does, the money is not enough to address these water challenges and Harare continues to have water problems. Documented evidence shows that in 2009, Ministry of Finance availed $17 million dollars the City of Harare when actually more than $250 million was needed to deal with Harare water infrastructure alone.

An interview with an official at Highfields Water Works established that the City of Harare is using same pipes installed before independence in 1980. The old pipes have led to leakages which are contributing to a high percentage of unaccounted water in the delivery system. In the process, treated water is wasted due to leakages. Treated water is also getting contaminated as it passes through damaged pipes which defeats efforts made by City of Harare to purify water.

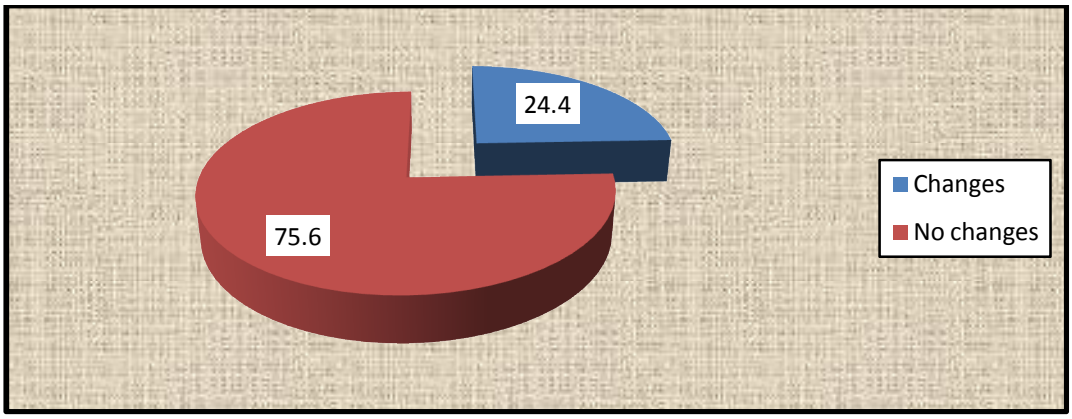
Harare News (Nov, 2013), a monthly community newspaper and online media hub reported that City of Harare is reportedly losing 62% of treated water of which 30% is a result of leakages.The researcher observed a number of leakages from main pipes in the area. Leakages are left unattended for longer times. One can easily tell due to the presence of grass growing around where pipes have been damaged.

In an interview with the Harare Residentsô Trust Director, Precious Shumba, it was noted that Hararecôs population over the years has continued to grow and the government has not invested in the expansion of the water infrastructure to match the growing population. Therefore, the existing water infrastructure is under extreme pressure to sustain the population.

been talks by the government to constructKunzvi Dam to supply water to Harare but to date the project has not taken off. The construction of Kunzvi Dam will relieve the pressure on the current water supply system to cater for other towns.

Respondents in the survey and focus group discussions criticised the government for interfering too much in local water governance. Water management has been with City of Harare, then to ZINWA then back to City of Harare again. The Government in July 2013 pushed for the water debt cancellation to domestic consumers. This affected efficient operations of municipalities which resulted in the decline in the service coverage and quality of water services and in some cases, an absolute breakdown of social service delivery.

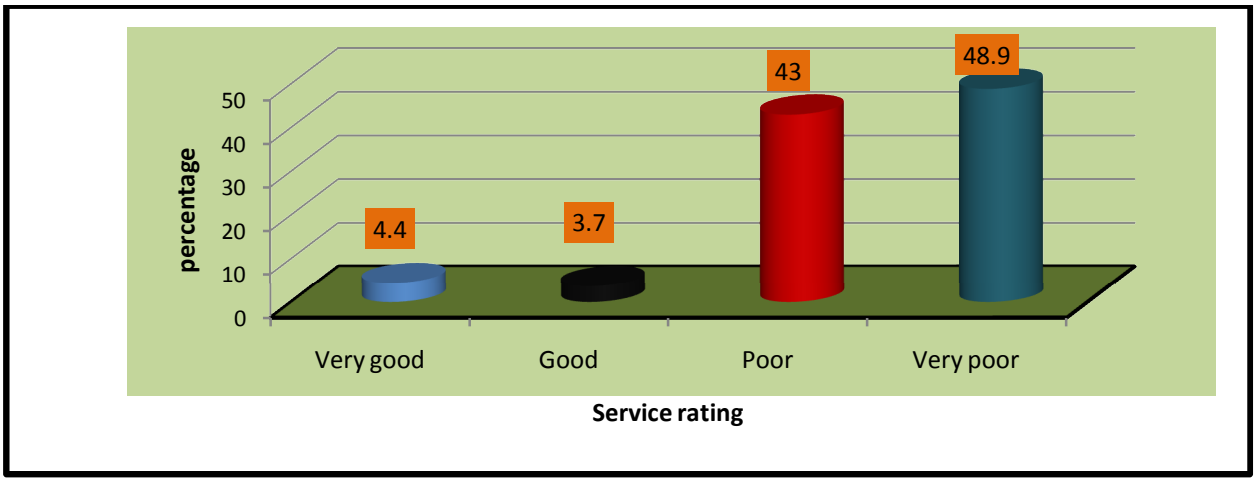
Figure 4.3: Water management changes by government from 2000



N=45

75.6% of the respondents in the survey indicated that water management changes initiated by the government from 2000 have not yielded any positive result in addressing the erratic and non supply of water in Harare. Water supply is still erratic and when it is available it is not adequate to meet demand.

e delivered by City of Harare compared to Zimbabwe



N=45

48.9% of the respondents in the survey noted that water service delivery by City of Harare has been very poor since taking over from ZINWA. 43% of the respondents rated the service as poor. There is a high frequency of water disruptions, residents are not informed on disruptions and when water supplied it is dirty. City of Harare does not attend to leakages on time.

The majority of respondents in the focus group discussions blamed City of Harare management for the water challenges. Respondents noted that despite religiously paying a fixed charge averaging US$11 a month they still do not have regular water supply. The fixed charge which is meant to cover maintenance and repair cost for the water infrastructure. Mrs. Rutsate criticised Harare Water that as the department responsible it has ñslept on dutyò and allowed City Treasury to divert these revenues to other City of Harare departments especially huge salary payments to top management.

of Harare for not informing residents of water cuts and worse if they go off for longer periods without any explanation. For some respondents, they are surprised by television and radio announcements of water cuts during maintenance when they have gone for months and weeks without water without any explanations.

4.3.4 Effects of the current water delivery system to residents in Budiriro.

Table 4.3:

RESPONSE	PERCENTAGE
Average time taken to fill a 20L container from a water source	
Less than 3 minutes	15.6
5-10 minutes	53.3
11-15 minutes	17.8
16-20 minutes	2.2
More than 20 minutes	11.1
TOTAL	**100.0**
Average time spent in queue by person responsible to collect water	
Less than 15 minutes	15.6
16-30 minutes	33.3
31-60 minutes	11.1
More than 1 hour	28.9
Donôt know	11.1
TOTAL	**100.0**
Appropriate distance to the water source	
Less than 100m	15.6
Between 100-300m	46.7
Between 301-500m	15.6
Between 501-1km	15.6
Between 1.1-2 km	2.2
More than 2 km	4.4
TOTAL	**100.0**

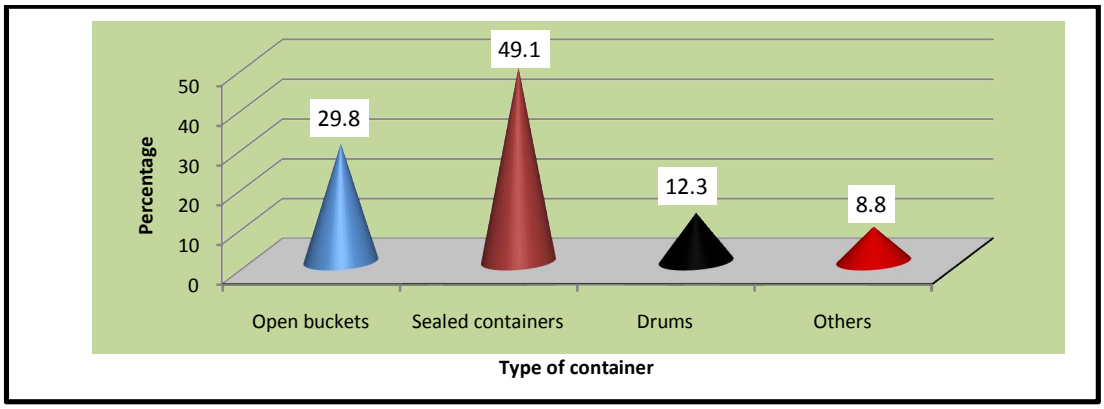
N=45

Respondents in the survey and focus group discussions complained that looking for alternative sources of water in the absence of municipal water is a daunting task. Although most boreholes are within reach, usually located between 100-300metres (46.7%), productive hours are lost through water collection duties. Waiting periods at public boreholes in the area varied. If residents

er, long queues boreholes were observed at water points. 28.9% of the respondents indicated that on average water collectors require about 30 minutes to an hour to collect water. On a day when municipal water was available in homes, waiting times at boreholes were reduced.

From the in-depth interviews with women in informal employment, the study revealed that the women endure long hours in the borehole queue than those in formal employment. They have to wake up as early as 4:00 am to fetch water.They are restricted by the number and size of containers they have in the home and this increases their number of trips to boreholes.

Figure 4.5: Type of containers used to store water



From the household survey, 49.1% of the respondents use sealed containers usually 20 litres or 25 litres, 29.8% use open buckets while 12.3% have invested in drums.

Respondents in the focus group discussions, which were mainly composed of women in informal employment, noted that women in formal employment and with better incomes have a different experience.In most cases, the households own a vehicle and this is used to carry containers from

f a vehicle also increases the alternative sources at their disposal as they can even go to other suburbs in search of the resource and still, in large quantities. Some would also fetch water from their work places. This category is able to store large amounts of water because they have invested in storage containers.

Table 4.4: Effects on health

Problem	**Percentage**	
	Yes	**No**
Does the time you spend collecting water has any implications on your health?	62.2	37.8
Implications		
Exposed to diseases	37.8	
Has developed health complications	11.1	
No enough time to rest	31.1	
TOTAL	**100.0**	

N=45

62% of the respondents in the survey indicated that erratic water supply has affected their health in a way.37.8% of the respondents have been exposed to diseases. 31.1% noted that they do not get enough time to rest, thus resulting in theexhaustion of the body.The most common method of transporting water is carrying 20 litre containers on the heads. Respondents in focus group discussions complained that carrying such heavy weights often results in serious deformities, chest pains, high blood pressure, headaches, backaches, osteoporosis,swelling legs and other bone diseases

	Percentage	
	Yes	**No**
Does the time you spend collecting water has any implications on you education?	44.4	56.6
Implication		
No time to study and doing assignments	100.0	

44.4% of the respondents in the survey agree that the time spent on water collection duties affected their education in a way. Respondents complained that by the time their children get to school they are tired and may not concentrate resulting in poor performance. Some children go back to the borehole after school and because of the long hours they spend in the queue, homework and studying is done very late or not done at all.

Table 4.6: Effects on dietary patterns

Problem	**Percentage**	
	Yes	**No**
Are dietary patterns altered by erratic water supply?	35.6	64.4
Implications		
Practice minimal cooking in order to conserve water	55.0	
No extra water for other kitchen uses	45.0	

35.6% of the respondents in the household survey agree that they are often forced to change their familiesô dietary practices when there is a lack of potable water. Nutrition suffers when water shortages force households to economise on water by practising minimal cooking, shifting to less nutritious foods that can be available even when there is no water, or by skipping meals all together.

e water delivery system in high density areas.

Table 4.7: Ways proposed to improve water delivery systems in high density areas.

Things to be done by responsible authorities	Percent
Repair & upgrade underground water pipelines Purify water Installation of more boreholes in the area Introduce independent companies to supply water	32.5 34.8 23.6 9.1
TOTAL	**100.0**

In the survey and focus group discussions, respondents expressed that City of Harare is responsible for delivering adequate water supplies and should make it a priority as water is a basic necessity. Harare Water needs to develop better communication strategies to all residents, regardless of their economic status, concerning water service delivery. Respondents urged water authorities to distribute water fairly. 32.5% of the respondents suggested that City of Harare must repair and upgrade underground water pipelines. 34.8% of the respondents suggested that Harare Water must purify water effectively so that consumersô confidence is restored.

Some respondents in focus group discussions proposed for a schedule of supply, for instance, getting municipal water twice or three times a week so that they make alternative arrangements to ensure that there is adequate water in the home. This would help in reducing water wastages through hoarding practises by residents as they will only store water for certain period when municipal water is not available.

As a short term measure, 23.6% of the respondents in the survey suggested that City of Harare must install additional boreholes in areas faced with irregular water supplies. These boreholes

that they are functional. About 9.1% of the respondents proposed that independent companies must be engaged to supply water.

4.4 Conclusion

Erratic water supplies have affected communities in most high density areas for years now. It is therefore, imperative for all stakeholders in the water sector to act collectively so that these water challenges are addressed.

The situation on the ground in high density suburbs has revealed that water supplies are irregular and erratic. Most residents have resorted to alternative water sources such as boreholes, private wells and buying water for household use.Erratic water supplies have had a negative impact on health in the community. Residents have been exposed to disease such as cholera, and other health complications such as back pains, chest pains, osteoporosis, and high blood pressure. Education sector has not been spared, Children are most affected as they have little time to concentrate on their studies and parents do not have enough time to supervise childrenôs homework.

Therefore, efforts by stakeholders must be geared to mobilise resources to improve water service delivery. The government must avail capital and technological resources to City of Harare to revamp the infrastructure to increase the quantity and quality of water for domestic purposes. Other stakeholders must engage communities and educating them on their rights. This will put pressure on water utility to provide an improved service delivery.

AND RECOMMENDATIONS

5.1 . Introduction

This Chapter brings together the generalisations that can be made about the current water delivery system in high density suburbs. The study unearthed pertinent issues relating to erratic and non supply of water and their effect on residents. The chapter also proposes recommendations arising from the findings of the study.

5.2: Conclusions

The study revealed that there is generally a breakdown of the public water delivery system in high density area. Water supply isirregular, erratic and inconsistent. Residents have inadequate water for domestic needs. Major findings showed that residents in Budiriro rely on both municipal water and public boreholes. When municipal water is available, most of the time it is of bad quality. Most residents shun it and rely on boreholes for drinking water.

Erratic and non supply of municipal water has affected residents differently. Women in informal employment spend longer time queueing for water at boreholes because they cannot afford to invest in many containers. Women in formal employment have different coping strategies to address erratic water supplies. They have have invested in large containers to store water. In households where they have a vehicle, they are able to collect more water from boreholes or other alternative sources, for instance, from their workplaces.

Findings suggest that water problems impact negatively on the local peopleôs health and wellbeing. The study was guided by the hypothesis that erratic water supply perpetuates community and social problems in high density suburbs. Findings from the discussions,

thesis. Education is affected by water collection duties. By the time the children get to school they are tired and might not concentrate. Some children go back to the boreholes after school. Parents are not able to supervise homework and for the school children, homework and studying is done very late or not done at all.

Findings from discussions with respondents established that nutrition suffers when water shortages force households to economise on water available. Households tend to shift to less nutritious foods that can be available even when there is no water, or by skipping meals all together.

The study established that some respondents have developed health complications as a result of carrying water. The mostcommon method of transporting water is on the heads of women, in containers whose carrying capacity varies from 20-30 litres. Women eventually suffer from headaches and exhaustion of the body.

From discussions and interviews with key informants, it was revealed that the water challenges facing Harare were a result of dilapidated water infrastructure. The dilapidated infrastructure hampers the delivery of water to consumers. Most of the water is lost through leakages. Treated water is also getting contaminated as it passes through the damaged pipes, thereby exposing residents of water borne diseases.

The study established that water has now become a site of contestation between central Government led by the Ministry of Local Government and City of Harare.The majority of

nce of Central Government for their water problems, while a significant number blame the City Council as well because of its incompetence. The government is not doing enough to address this perennial crisis. The population hascontinued to grow and the city and government have not invested in thesewerage and water infrastructure to match the growing population, andthe expressed needs of the citizenry, so the existing infrastructureis under extreme pressure to sustain the population.

A review of literature on erratic water supply revealed that water scarcity in high density areas is more of lack of proper management and investment to meet the demand. There is evidence of declining standards of reliability and service in Budiriro high density suburb. There is competition for the resource and a growing conflict between the government and local authorities to manage water supply. Evidence from the cases of South Africa and Zambia, provides ways in which other countries are addressing the water challenges in urban areas.

The study also confirmed that irregular water supply in high density areas has created social and community problems. Incidences of water borne diseases were reported. Education and nutrition were affected in a way by the erratic supply of water. It has become justified that ACF can be used to address the problem of irregular water supply in communities.All stake holders must agree on the way forward to address the problem. In the case of urban water supply, there is a tendency to apportion blame on the government for the water problems. Government must work together with civil society, business leaders, legislators, policy makers, and media to solve the problem and ensure that water is safe and readily available to avert problems associated with non availability of water.

The recommendations that follow recognise the complexity of public water supply system in high density areas. Measures must be taken by multiple players to address the water challenges.

The water utility must urgently rehabilitate the water and reticulation infrastructure. New pipes must be replaced to ensure a steady supply of water to households and avoid contamination of treated water. The City of Harare must devise ways to reduce unaccounted-for-water so that money and treated water are saved which can be directed to maintenance works. The City of Harare must partner with private investors so as to raise financial resources for water and sanitation operations. Water bowsers must be available as back-up especially when boreholes are overcrowded or not functional.

The revenue being generated from water services must be ploughed back in to the rehabilitation, maintenance and upgrading and expansion of the water infrastructure. The annual budget drawn up by the council every year must specify what percentage of revenue generated every month should be devoted to water and sewerage reticulation, because they charge residents for these services.

Government should make basic water, a human rights issue in practice and not theory as is currently the case. Central Government must ensure that citizens have safe, sufficient and accessible water for domestic use. The Government must provide adequate financial and technical support to the water utility. The government must learn from experiences of other countries faced with urban water supply challenges. There is need for the water utility o come up with multiple

oreholes are valuable especially when there are disruptions in water supply to citizens.

There is need to work on the institutional arrangements regarding to maintenance of public boreholes. The residents must also take responsibility for such resources. The City of Harare must always ensure that they are functional.

Devolutionof power by Central Government is recommended. This will minimize interference in the activities of thelocal authority by the Ministry of Local Government and Urban Development.Devolution of power by Central Government will reduce red tap on bureaucracy. This will also remove interference in the day to- day activities of the council by the Central Government.

Public awareness campaigns and education programmes by HRT and other civic organisations must be continued to equip residents with the knowledge of water management. For instance, encouraging residents to store water properly to avoid contamination and safeguarding wetlands. Residents are encouraged to be involved in water management process by way of setting up committees to manage community boreholes. This will helpresidents to have a sense of responsibility.

5.4 Conclusion

This chapter looked at the results of the study. The breakdown of the public water supply system requires the adoption of the Advocacy Coalition Framework. The various players must not leave

ne problem.Residents, residents associations, researchers, local authorities, legislators, civil society groups, media, private sector, non-government organizations, humanitarian agencies must coordinate effectively to collectively address the public water supply challenges especially in high density suburbs. These recommendations will guide on prioritization, resource allocation and implementation of programmes regarding to public water supply.

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QUESTIONNAIRE FOR HOUSEHOLDS

Please read the question carefully and then select the answer that describes your opinion by ticking the box of your choice that is below the answer you have selected.

The aim of the questionnaire is to document the current water delivery system in Budiriro high density suburb, the extent of non supply and erratic water supply in Budiriro and the impact it has on residents with an intention of presenting a set of recommendations for improving the situation.

Please state which part of Budiriro, where you live…….

SECTION A - DEMOGRAPHIC DATA

1. Gender of Respondent

Male	Female

2. Age of Respondent

Below 15yrs	16-25yrs	26-35 yrs	36-45 yrs	46-55 yrs	56-65 yrs	Over 65yrs

3. Marital Status

Single	Married	Divorced	Widowed

4. Number in household

5. Primary source of income for your household

Formal Employment	Small Business	Remittances	Vending/ Informal	Cross-border business	Other

6. Who is responsible for fetching water for your household?

Male	Female	Both

R SUPPLY

7. What is your main source of water for the household?

Tap Water	Borehole	Protected Well	Unprotected Well	Other source (specify)

8. If taped water, how often is taped water available in the house?

Always	At Times	Rarely available	Not at all

9. What is the longest period when tap water is not available?

1-2 days	One week	More than 1week	1 ï 2 month	More than 1 month

SECTION C - COPING STRATEGIES

10. If tap water is not available, what then is your alternative water sources

Borehole	Protected well	Unprotected well	Other including buying water

11. What type of containers do you use to store water?

Open Buckets	Sealed Containers	Drums	Others (Specify i.e. bath tubs

12. On average, how much time does it take to fill a 20L container from a water source?

Less than 3 mins	5-10mins	11-15 mins	16-20 mins	More than 20 mins

13. On average, how much time does the person responsible for collecting water spends queuing at a water source?

Less than 15mins	16-30 mins	31-60 mins	More than 1 hour	Donq know

14. What is the approximate distance to the water source?

Less than 100m	Between 100-300m	Between 300-500m	Between 500m-1 km	Between 1-2 kms	More than 2 kms

ehold require each day for drinking, cooking, bathing and sanitation only?

Less than 40L	41-60L	61-80L	81-100L	More than 100L

16. How accessible is water, if outside the homestead?

Throughout the day	During day time	Early morning	Evening	Late evening

SECTION D - PROBLEMS ASSOCIATED WITH THE CURRENT WATER DELIVERY SYSTEM

17. Does the time that you spend collecting water has any implications on your health?

Yes	No

If yes, please explain further.

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18. Does the time you spend collecting water has any implications on your education?

Yes	No

If yes, please explain further.

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the current erratic water supply?

Yes	No

If yes, please explain further.

é é

é é

SECTION E – GENERAL QUESTIONS

20. How do you rate the quality of services delivered by the City of Harare when compared to Zimbabwe National Water Authority?

Very Good	Good	Poor	Very Poor

21. Has anything changed?

Yes	No

22. In your view, what can be done by responsible authorities to ease the problem of erratic water supply in your area?

……

……

23. What improvements would you like to see in future?

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The End of the Questionnaire

Thank you for your cooperation

FORMANT INTERVIEWS

1. How do you describe the supply of water in Budiriro high density suburb?
2. In your opinion, what has led to this situation?
3. What steps are being undertaken to address the problem of non-supply of water/ erratic supply in Budiriro high density suburb?
4. Are there any mechanisms in place to educate residents on the part they can play to alleviate their plight?

Thank you for agreeing to participate.

I am interested to hear your valuable opinion on the current water delivery system in Budiriro high density suburb and how it can be improved to ensure quality of services.

The purpose of this study is toexamine the strengths and weaknesses of the water delivery system.We hope to learn things that the City of Harare can use to improve the water service delivery in the high density areas. The information you give us is completely confidential, and will not associate your name with anything you say in the focus group.

Questions:

1. Letôs start the discussion by describing the current water delivery system in Budiriro. What are some of the positive aspects of the system?
2. What are some things that arenôt so good about the water delivery system?
3. What suggestions do you have to improve the situation?