

STRATEGIES TO COPE WITH THE IMPACT OF CHOLERA ON ZIMBABWE FROM
2008 TO 2009

A CASE STUDY OF BUDIRO HIGH DENSITY SUBURB, CITY OF HARARE

By

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DECLARATION

DECLARATION

I hereby declare that this dissertation has not been submitted, either in the same or different form, to this or any other university for any degree.

Signature:

A handwritten signature in blue ink, appearing to be "Alim Faruq", written over a horizontal line.

Date:

October 2010

DEDICATION

This research project is dedicated to my family (wife Miriam; three daughters, Tinashe, Carthy and Angela; Keith, my only son) and my cousin (Hilda Zhanero) for understanding and accommodating my busy schedule due to this research.

ABSTRACT

This study sought to determine the coping strategies regarding the impact of the cholera epidemic in Zimbabwe from 2008 to 2009, focusing mainly on a community in Budiriro suburb, which is located in the city of Harare. The cholera epidemic affected the whole country of Zimbabwe and it took one year to be contained. Although concerted efforts were made to mobilize support from various international and local partners, a total of 98 592 people were infected and 4 288 died. This represents a case fatality rate of 1.7% and for Budiriro it was 2.3% as it was one of the most affected suburbs, where 206 people died. The death of so many people motivated the researcher to find out how the community managed to cope with the devastating impact of such a nationwide epidemic.

The findings from the study were that at the time of the cholera outbreak in Budiriro, safe clean water was no longer available to the residents. Cholera came at a time when Zimbabwe was on its knees socio-economically and politically. Similarly, Harare City Council was facing several challenges that compromised its capacity to maintain and replace water and sanitation infrastructure. Sewerage systems had collapsed in most parts of the suburb and toilets were no longer functional, forcing most of the residents to defecate in the open spaces. Faecal contamination of the alternative water sources contributed to the high death rate in Budiriro.

The study made several recommendations which are categorized into immediate, short term and long term in order to guide prioritization and implementation. More resources should be allocated to ensuring that sewerage and water infrastructure is fully functional. Council could start with smaller but critical tasks such as clearing of drainage systems before the onset of the rainy season. More importantly, cholera health education should be amplified with the assistance of humanitarian agencies that have the means for such programmes. Above all, active participation of citizens in civic issues should be mainstreamed into programmes spearheaded by Council and other stakeholders in the water and sanitation sector.

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ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral therapy
BBC	British Broadcasting Corporation
C4	Cholera Command Control and Centre
CBC	Canadian Broadcasting Corporation
CBO	Community Based Organizations.
CFR	Case Fatality Rate
CHW	Community Health Worker
CIDA	Canadian International Development Agency
CPU	Civil Protection Unit
CTC	Cholera Treatment Centre /Camp
CWGH	Community Working Group on Health
DFID	Department for International Development
DRC	Democratic Republic of Congo
EHT	Environmental Health Technician
FGD	Focus Group Discussion
GAP	Global Political Agreement
GoZ	Government of Zimbabwe
HIV	Human Immunodeficiency Virus
IASC	Inter Agency Standing Committee
ICRC	International Committee of the Red Cross
IEC	Information, Education and Communication
INGO	International Non Governmental Organization
IUCN	International Union for Conservation of Nature
LNGO	Local Non Governmental Organization
MoH&CW	Ministry of Health and Child Welfare
MSF	Medecins sans Frontieres
NFI	Non Food Items
NGO	Non Governmental Organisation

OFDA	Office of USA Foreign Disaster Assistance
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
OVC	Orphans and Vulnerable Children
PAR	Pressure and Release model
POSA	Public Order and Security Act
PTSD	Post Traumatic Stress Disorder
R	South African Rand
RCZ	Research Council of Zimbabwe
SADC	Southern Africa Development Community
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNOCHA	United Nations
US\$	United States Dollar
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
ZADHR	Zimbabwe Association of Doctors for Human Rights

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CHAPTER 1

RESEARCH BACKGROUND, OBJECTIVES AND METHODOLOGY

1.1 Introduction

This chapter lays the foundation for the entire research by introducing the background of the study, statement of the problem, research objectives and questions, justifying the significance of the study. Thereafter assumptions of the study are presented, followed by the methodology and the sampling techniques used, including the data gathering tools. The delimitations, limitations and ethical considerations of the study are also highlighted before closing the chapter with definitions of key concepts.

1.2 Background to the study

In August 2008, there was a devastating cholera outbreak in Zimbabwe, which took almost a year to be contained. By the end of July 2009, the daily cholera update and alerts produced by World Health Organization (WHO, 2009) showed that at least 98 592 people had been infected and a total of 4 288 died from the disease. This represented a Cumulative Institutional Case Fatality Rate (CFR) of 1.7%, a figure too high for a simple and treatable disease like cholera. According to WHO's Health Action in Crises, Highlights number 251 (March 2009: 1), the cholera CFR reached a peak of 4.4% in March 2009. The report showed that coordination was done through what was known as the Cholera Coordination and Command Centre (C4). This was housed within the WHO offices. The Ministry of Health and Child Welfare was represented as well as other non-state agencies through the Health Cluster.

By mid December 2008, cholera had been recorded in all the ten provinces of the country. Some of the districts that recorded the highest case loads included Harare, Beitbridge and Mudzi (USAID, 2008: 1). According to the World Health Organization (WHO), the cholera outbreak affected border areas of neighbouring countries, with confirmed cases reported in Botswana, Mozambique, Zambia and South Africa, primarily among Zimbabwe nationals. Although the pandemic was declared a state of disaster,

resulting in cholera treatment centres being established throughout the country, it was done rather late. It was only in December 2008, when the Government of Zimbabwe through the Ministry of Health and Child Welfare (MOHCW) requested for international assistance to respond to the cholera outbreak. According to (USAID, 2009: 2), a breakdown in water and sanitation infrastructure exacerbated Zimbabwe's cholera outbreak, and the nation's collapsed health system was unable to respond adequately.

Humanitarian agencies responded to the cholera disaster through provision of drugs and supplies, camping equipment, information education and communication (IEC) materials, educational campaigns, disinfectants and water treatment tablets. It was, however, reported that case management in health facilities was not up to the required minimum standards, and community involvement was minimal regarding surveillance and preventative activities. Unfortunately, at the time of the outbreak, public health institutions were not functioning properly, putting more people, especially the most poor and vulnerable at risk (WHO, 2009:6).

When it was realized that the problem was escalating without any solution in sight, the Ministry of Health and Child Welfare partnered with international agencies such as UNICEF and WHO, established Cholera Treatment Centres at strategic locations throughout the country. In Harare, the main centre was established at Budiriro Polyclinic because the majority of newly infected cases came from that area and its surroundings. Based on WHO (2009: 3) daily cholera updates and alert reports, of the 19 582 cases recorded in the entire city of Harare, at least 55% of them were from Budiriro and its environs alone. Applying the 2002 national census figures and subsequent projections, Budiriro clinic serves a population of at least 116 569 people. Recorded cases of people infected with cholera in Budiriro stood at 9 116 of which 113 died by the time it had been contained in July 2009.

1.3 Problem statement

Cholera epidemics may be catastrophic because they cause the deaths of many people. According to an account published by CBC News (2008), at least 100 000 people died in

1820 in Indonesia, and then in 1848 a total of 52 000 people died in England and Wales. In Russia, 90 000 people died in 1866 and again 200 000 died in the same country between 1893 and 1894. This was after 90 000 people had died in Japan between 1887 and 1889. It was in 1899 when the highest deaths were recorded in India when 800 000 people died. In Africa, the Congo possibly had the highest recorded deaths that occurred in 1994 when an estimated 40 000 people died of cholera. If the above figures are to go by, then the socio-economic losses due to cholera are too huge to ignore. Equally significant is the resultant impact, hence the need to identify effective coping strategies during and after cholera outbreaks. This may help to ensure that there is capacity and preparedness within and outside the community in order to minimize losses.

More importantly, the frequency of outbreaks is now on the increase, especially in developing countries like Zimbabwe. During the past decade, the country had cholera outbreaks to varying intensity and extent. For instance, the one that recently hit the country between 2008 and 2009 could be the third highest recorded in the continent, after the Congo in 1994 and South Africa in 2000. Moreover, the outbreak in Zimbabwe took longer to be addressed. Unfortunately, in this 21st century, it would be the communities led by undemocratic governments and characterized by poverty who will be affected most, due to failure in improving living conditions of their people as they prioritize political survival.

The high frequency of cholera outbreaks means more challenges to the community if they do not build their resilience in order to minimize the impact of future epidemics. Disease outbreaks like cholera negatively impact on people's livelihoods and may reduce their recovery capacity after the death of the breadwinner(s). It is against this background that the study aims to find out why more than 100 000 people were infected during the 2008 to 2009 epidemic and what more could have been done to cope with the situation. The number of people who were affected and those who died, including the lengthy period it took to stop the problem, meant that the coping strategies of the communities and humanitarian agencies failed to protect vulnerable members of the community at risk. As

such, there is need to investigate these coping strategies so that the impact of future cholera outbreaks are minimized.

1.4 Research objectives

This study sought to:

- a) Examine the impact of cholera outbreaks in Budiro suburb.
- b) Investigate the coping strategies used in Budiro.
- c) Find out the challenges encountered in applying the coping strategies in Budiro.
- d) Come up with strategies that strengthen community's resilience to future outbreaks.

1.5 Research questions

The following research questions were used for the purposes of focusing the research on the subject matter:

- a) What is the social, physiological, economic and environmental impact of the cholera outbreak on the community?
- b) What coping strategies were used in Budiro during the 2008 to 2009 epidemic?
- c) What challenges were encountered in applying these coping strategies?
- d) What other strategies could be used to strengthen community's resilience to future outbreaks?

1.6 Significance of the study

Any outbreak of cholera is of interest to the public. That is why the International Sanitary Regulations (ISR) requires that every cholera case be reported to the World Health Organization (WHO) telegraphically within twenty-four hours by governments who are members of WHO. Issues of public concern like cholera that is highly infectious also require cooperation and involvement of other key stakeholders. It is against this background that any study focusing on an issue of public interest should benefit the same public although differently. Some of the benefits of this study include:

- a) Finding ways of improving local communities' preparedness, therefore national preparedness, since the disease is of public interest. It is important for communities to strengthen their capacity to respond to disasters.
- b) Documentation and dissemination of best practices for wide sharing with others. This could be done by researchers, communities, humanitarian agencies and/or local authorities in order to learn from each other. This research should enable extrapolation of new ideas and strategies that were successfully used by communities with similar problems elsewhere in the world. These may be useful to Zimbabwe when adapted to suit the local context.
- c) Generating new knowledge about how communities like Budiriro managed to cope with the cholera disaster impact, considering that communities are unique, therefore have different ways of dealing with a particular problem. This information will also be used for lobbying and advocacy purposes aimed at influencing change in policies and practices at local authority and government levels. These changes are equally important even at community and humanitarian agency levels, especially with regards to water and sanitation issues in an urban set-up.
- d) Stimulating debate on the need for an all-encompassing disaster management policy for Zimbabwe considering that at present this is not in place.
- e) Identifying possible areas for forging strategic partnerships with the private, government, local authorities, civil society and affected communities.

1.7 Assumptions of the study

The underlying assumption was that cholera, as a simple and treatable disease, should have been effectively managed and stopped. People's lives could have been saved during the outbreak that began in 2008. It was therefore assumed that the coping strategies of the community and institutional stakeholders were weak, hence the high infection and death rates. It was also assumed that the communities would provide most of the required first-hand information since they were the ones on the ground. Cholera infected them directly

and indirectly, and they still remember most of what happened between August 2008 and July 2009.

Last but not least, the research assumes that the Harare City Health Department and WHO, the main players in coordinating the cholera response actions, will make the secondary data available and accessible.

1.8 Methodology

In selecting the methodology for this research, provision was made to ensure that the research questions were adequately answered. According to Leedy and Ormrod (2001: 14), a research methodology should also dictate the particular tools that the researcher selects. The methodology selected for this study enabled the assessment of qualitative and descriptive issues thereby thoroughly investigating both relative and absolute issues. Muranda (2004: 53) agrees with this thinking when he cites qualitative research as that which involves small samples of respondents who provide descriptive information about their thoughts, feelings and beliefs. Focused Group Discussions were able to satisfy this aspect as suggested by Leedy and Ormrod (2001: 148), in order to verify and validate certain claims. On the other hand, the interview with key informants provided both qualitative and quantitative information of technical nature.

1.9 Sampling

On applying the sampling techniques, a number of factors were taken into consideration. They included the geography of the area, intensity of cholera cases in certain areas, time available for the research and budget. The sampling techniques were as follows:

- a) Purposive sampling was done based on the areas that were most affected, and period when most cases occurred. A review of clinic records at Budiriro Cholera Treatment Centre showed that cholera cases were concentrated in the period 25 August 2008 to 3 January 2009. In this case, a list of people who visited the clinic during this period was compiled by listing the house number of the patients that were recorded in the

register. However, only the first 478 patients were picked due to the limited scope of the study, time factor and resources.

- b) The second step was cluster sampling, whereby houses from areas (clusters) where there were more cholera cases were selected. Three clusters were formed using geographical location and/or proximity to each other.
- c) Thereafter systematic random sampling was done using this list aimed at ensuring equal representation of each of the identified clusters as suggested by Leedy and Ormrod (2001: 215). This approach guaranteed that respondents selected from these areas or clusters were spread evenly. After having arranged the list in ascending order using house numbers, only 108 houses were picked randomly. Each cluster contributed a proportionate number of houses to the finally selected 108 depending on their contribution to the first 478 on the list. In order to reduce the chance of non respondents, the next lower and higher house numbers from the selected unit were also recorded and set aside as alternate respondents, provided the preferred one failed to respond for whatever reason. Therefore the final list had 360 house numbers after having started with 478.
- d) For Focus Group Discussions FGDs, purposeful sampling was done by selecting houses where there were more than one person recorded in the clinic register. One FGD was conducted in each cluster by selecting streets where cholera was more concentrated.
- e) The final sampling step used convenience sampling that enabled selection of the actual respondent at household level. This meant that enumerators interviewed anyone whom they found at the selected household, and not necessarily the person who was infected and listed in the clinic register. In this case, the interest of the study was the household and not the individual. That is why there was no need for recording the names of the patients from the clinic record, but their house number.

1.10 Data gathering tools and administration

Some of the tools described by Leedy and Ormrod (2001: 14) that were used in this research included the following:

- a) Library and its resources – reading materials such as books, magazines, journals, reports and newspapers thereby enabling the review of available literature. More specifically, the researcher went through reports that were released by the World Health Organization in collaboration with the Ministry of Health and Child Welfare and other key humanitarian agencies covering the subject matter. WHO housed the Cholera Control and Command Centre (C4) whose primary role was coordinating cholera information of the whole country.
- b) Computer and its software – mainly the use of the Internet and for inputting data, its analysis, storage and retrieval. Statistical Package for Social Scientist (SPSS) was used to analyze data captured by the questionnaires. Data was collated for purposes of establishing common trends or themes and then presented using tables, graphs and charts to interpret both the qualitative and quantitative variables.
- c) The human mind – the mind of the researcher was applied in order to enable an independent interpretation of the data aimed at arriving at logical conclusions and recommendations thereafter.
- d) Facility of language – enabling compilation of the research report in a manner consistent with the research findings.
- e) In addition, the study also used the following tools to complement the research methodology:
 - Questionnaires with structured and close-ended questions were administered targeting households that had been affected by cholera in Budiriro. Four enumerators were engaged to assist with administration of the questionnaires by walking from one household to another. These enumerators were selected from

Budiriro suburb since they were already familiar with the geography of the area of study. This strategy reduced time spent trying to locate a particular house.

- Focused Group Discussions (FGDs) were also used, but guided by a checklist with a set of questions to ensure that there was focus during the group discussions. Communities that benefited directly and indirectly from the activities of the humanitarian agencies and the City Health department were also allowed to participate in these focus group discussions. The FGDs were convened after questionnaires had been administered, thus enabling probing of unclear issues from the responses on the questionnaire. It was at this stage that most of the qualitative variables were solicited and the number of participants in each FGD was around 32.
- Key informants were also interviewed by use of a question guide in order to get technical information. This was done on a one-on-one basis by the researcher. These were mainly key health personnel at Budiriro Polyclinic, community health workers who were responsible for community mobilization and the person in charge of information at C4.

1.11 Conceptual framework

The Pressure and Release (PAL) model (Wisner *et al.*, 2004, 51) was used to assess the predisposal factors for the outbreak of cholera in Budiriro and the outcomes thereafter. This model considers people's vulnerability as rooted in social processes and underlying causes which may not directly be linked to the disaster. It is also known as the Crunch Model influenced by what are called push factors, namely root causes and dynamic pressure that are caused by structural issues that impact on policies, practices and decision-making. By applying this model, the study was able to carry out a vulnerability analysis in respect of the cholera disease outbreak, and also identify the specific vulnerability conditions (ISDR, 2002: 72). This approach realized the existence of direct and indirect push factors that contributed to the occurrence of the cholera disaster.

1.12 Delimitations of the study

The research targeted Budiriro community where one of the major Cholera Treatment Centres (CTC) was set by the Ministry of Health and Child Welfare in collaboration with international humanitarian agencies. This study was, however, limited to the impact and coping strategies only with the objective of strengthening community capacities and resilience to future disasters. Figure 1 indicates the geographical location of Budiriro.

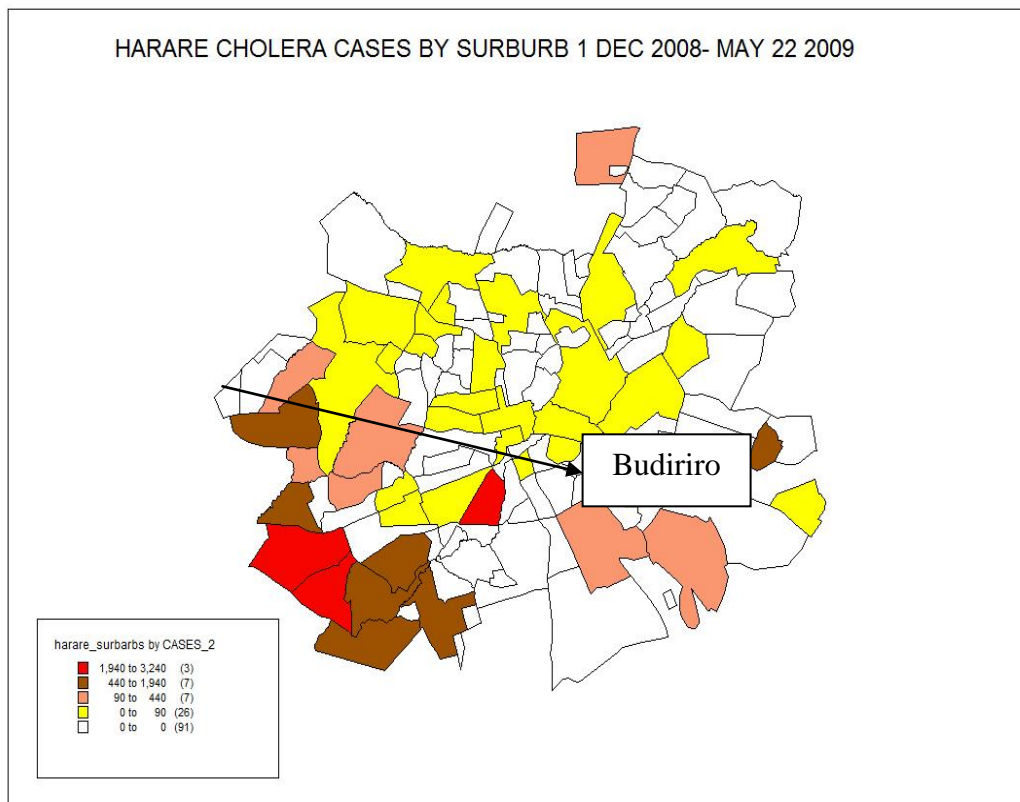


Figure 1: Map of Harare showing boundaries of Harare suburbs
Source: Cholera Coordinating Command Centre, Harare (2009)

1.13 Research design

The research design used both quantitative and qualitative variables in order to bring more understanding of community issues. This approach helped to give meaning to the underlying beliefs, attitudes, perceptions and behaviours based on the responses captured by the questionnaire. That requirement was achieved by combining qualitative and quantitative methods supported by asking probing questions during FGDs. That was why

a questionnaire with structured questions was administered first, followed by FGDs in order to have some in-depth discussions that focused on specific issues addressing the research questions.

1.14 Limitations

Owing to the sensitivity of health-related information, it was difficult to get detailed information from humanitarian agencies that worked in Budiriro and even from Budiriro Polyclinic where the Cholera Treatment Centre was set. Moreover, it took a bit longer to get clearance from the Ministry of Health and Child Welfare so that the study could be commenced. The researcher had to apply to the ministry through the Permanent Secretary, whose office delegated the appropriate office to consider the application.

The first response was that the researcher needed clearance from Research Council of Zimbabwe (RCZ) first. After applying to the RCZ, it was replied that there was no need for such a clearance because the researcher was a Zimbabwean. With the letter which also took time to get, the Ministry approved the study, subject to the researcher getting the final approval from the City Health Department of Harare City Council. An application was then made to the City Council, which gave final approval, but only after three weeks. It is, however, important to mention that all the delays cited above were purely due to bureaucracy in the systems rather than reluctance for the research to be carried out. All the offices were in support of the study, which they said was beneficial to their departments. Under the Public Order and Security Act (POSA), the researcher had to get clearance from the Zimbabwe Republic Police, as a prerequisite to be allowed to gather communities. After applying, permission was granted by the police allowing the researcher to administer the questionnaires during house to house visits and Focus Group Discussions (FGDs).

There were cases of suspected exaggerations by some people during the field survey, even in FGDs. Some even refused to participate, but were not prepared to justify their reasons. Such behaviour was expected considering that the cholera epidemic resulted in

the death of beloved family members. Possibly the study evoked past emotional memories.

Another limitation was the incompleteness of the register at Budiro Polyclinic. In some instances, essential information such as house numbers and street names was missing. Moreover, the register was not always completed on some of the days. Without street names it was difficult to locate some houses because the physical planning by the local authority was not that systematic and sequential. Thus, the field work took slightly more days than planned.

1.15 Ethical considerations

Three key ethical considerations that were observed included the following:

- a) The principle of informed consent was adopted, where respondents were informed that there was no penalty for refusal to participate or even answer certain questions.
- b) Confidentiality for safeguarding privacy of respondents was emphasized. As such, no names of people were taken from the patient registers, but only their house numbers.
- c) Gender equality was observed. However, whoever was found available at the household by the enumerators was asked to respond to the questionnaire on behalf of the family. Even the participants to the FGDs were not selected by gender although there were significantly more females than males.

1.16 Key concepts and definitions

Considering that disasters are becoming more and more complex and that new discoveries were made about them due to technological development, it was necessary that certain terminologies be defined from the onset. This was necessary to bring about common understanding with regards to disaster risk reduction concepts covered in this research. The definitions hereunder were taken from the United Nations International Strategy for Disaster Reduction (UNISDR) handbook (2009).

Capacity: which is at times described as ‘capability’ which is the combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Disaster: a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impact, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster risk: the potential disaster losses in lives, health status, livelihoods, assets and services, which could occur in a particular community or society over some specified future time period.

Hazard: a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury health impact, property damage, loss of livelihoods and services, social and economic disruption or environmental damage.

Preparedness: the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impact of likely, imminent or current hazard events or conditions.

Recovery: the restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Resilience: the ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including the preservation and restoration of its essential basic structures and functions.

Response: the provision of emergency services and public assistance during or immediately after a disaster in order to save lives reduces the health impact, ensure public safety and meet the basic subsistence needs of the people affected.

Risk: the combination of the probability of an event and its negative consequences.

Vulnerability: the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

1.17 Conclusion

This chapter covered the research objectives and the problem statement, giving justification for the significance of the study and the methodology that was used. It also looked at the data gathering tools, how the data was analysed and presented and the conceptual framework used. Last but not least, the delimitations, limitations and ethical considerations were highlighted and the chapter concluded with definitions of the key terms.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter looks at some of the existing literature covering broader and specific issues pertaining to cholera. A global overview, focusing on regions and countries that experienced cholera outbreaks in the past is presented before focusing on the Zimbabwean issue. In addition, the relationship between cholera and other factors such as age, gender, nutrition, seasons and socio-economic status is also investigated. The chapter further discusses factors that enhance transmission of the cholera disease, impact of the disease and lastly coping strategies applied to mitigate the impact.

2.2 Cholera disease: An overview

Cholera is a communicable infectious disease that is caused by pathogens. It is mainly caused by bacteria known as *Vibrio cholerae*, which is believed to be linked to specific seasons and bio-geographic zones (Lipp *et al.*, 2002). The first person who provided insights into the disease was John Snow when in 1854 he linked cholera to contaminated water (Smith, 1999:70). Snow established that people who were getting sick and those who eventually died were taking their drinking water from the same source or would have consumed food or drink prepared using the same water. As a physician, he used maps of Broad Street area in London and managed to trace the origin of the problem to a water pump, which was used to fetch water. His conclusion was therefore that, whatever was causing the sickness and subsequent death was in the water. However, at that time Snow did not manage to identify that the organism causing the disease as *Vibrio cholerae*. This was done by other scientists some years later.

If not treated, cholera can kill a person within hours. Smith (1999: 69) indicated its incubation period as varying from three to five hours. However, the average is two days. This shows how deadly the disease is, requiring urgent treatment in order to save a life.

2.3 Mortality and morbidity of the cholera disease

With cholera, a case fatality rate (CFR) of one per cent is acceptable. In the Inter-Agency Field Manual produced by the United Nations High Commissioner for Refugees (1999: 131), CFR is defined as number of deaths due to the disease in a specified time period divided by the number of cases of the disease during the same period. A CFR of above one per cent is an indication of a poor public health system (Jamison *et al.*, 2006: 377). The World Health Organization (WHO) recommends an investigation for any CFR that is above five per cent (2004: 33). However, there is recognition of other contextual issues like remoteness of certain areas that may be inaccessible where a CFR of 20% could be acceptable.

2.4 Symptomatology: signs and symptoms of the cholera disease

Symptoms of cholera are very easy to detect even at individual level. The disease may be described as a water or food borne disease that leads to an acute diarrhoeal illness. Infected people may display symptoms like sudden, painless and profuse watery diarrhoea, dehydration and abdominal pain. The patient also may experience occasional vomiting, which then induces electrolyte imbalances in the body. As a result, there is severe and rapid loss of body fluids and electrolytes. As noted by Gorbach *et al.* (1998: 740), other symptoms such as excretion of large volumes of non-bloody rice-watery stools, muscle cramps and signs of shock are not uncommon.

The degree of infection is classified depending on its severity. This grouping varies from mild, moderate to severe. If the case is severe, dehydration, metabolic acidosis, renal and/or circulatory collapse may occur leading to sudden death. Salisbury *et al.* (2006) note that 50% of untreated cases may die within few hours of onset but normally mortality is less than one per cent if treated in time.

2.5 Global cholera distribution and trends

Cholera epidemics are not new worldwide. The first recorded case was in India in 1817 (CBC News, 2008). According to Yoshikawa *et al.* (1980: 394), to date seven major

pandemics have been recorded since 1817, and the last one hit the Western Hemisphere from 1866 to 1867. This phase was caused mainly by lack of adequate sanitation, personal hygiene and basic health care services. According to Salisbury *et al.* (2006: 99), during that phase in England and Wales, the last notable cases were reported in 1893.

As of now, all continents have had their fair share of the problem but with varying intensity and extent. Since then the disease has been intermittently occurring with the seventh pandemic reported in Indonesia in 1961, Africa in 1970 and South America in 1991 (Griffith *et al.*, 2006).

It is, however, important to note that the Western Hemisphere was almost free from cholera for almost 100 years after the sixth pandemic. The first cases were reported in Peru and parts of South and Central America. Tan *et al.* (2008: 154) reported that most of the cases reported in United States of America (USA) were associated with travelling and eating of raw food imported from South America. Recently four local cases were reported in the USA, and these were linked to Hurricane Katrina.

More importantly, outbreaks in urban areas are not a new phenomenon in the world. Cholera is now secluded to the tropical and subtropical countries which are characterised by poor sanitation standards. The most affected are developing countries facing challenges in ensuring compliance with urban planning standards. That is why there is a low chance of outbreaks in developed countries with good water, sanitation and food hygiene. Some of the recorded cases include the following:

- a) From 1999 to 2001, a total of 126 cases were reported worldwide and 64% of them were from India although the disease is now widespread in Asia and Africa in general.
- b) In 2003 alone, 45 countries reported cholera cases to WHO (Salisbury *et al.*, 2006: 100), with 111 575 cases and 1 894 deaths. At least 96% of these cases were from the Democratic Republic of Congo, Mozambique, Somalia, Uganda and Liberia. Considering the socio-economic and political situations in those countries, quite a

number of cases might not have been reported to the authorities due to poor communication and institutional arrangements.

c) In 2007, at least 178 677 cases were reported plus 4 033 deaths from across the world (Kirigia *et al.*, 2009: 1). This figure indicates a huge decline from the six million cases and 120 000 deaths that were reported by Gorbach *et al.* (1998: 739), as occurring worldwide on an annual basis almost a decade ago. This decline in case rates shows that significant strides are being made to contain the disease globally.

Unfortunately the disease was and still is confined mainly to the less developed countries, where the majority of people live. Gorbach *et al.* (1998: 739) summed it up by saying that the risk of cholera in the United States of America and other developed countries is very small, making it a problem of Africa, Asia and South America. Figure 2.1 reveals a frightening scenario, especially for Africa, since it shows that cholera cases have been on the increase since 1995. South East Asia is next in line, but its situation is much better compared to Africa.

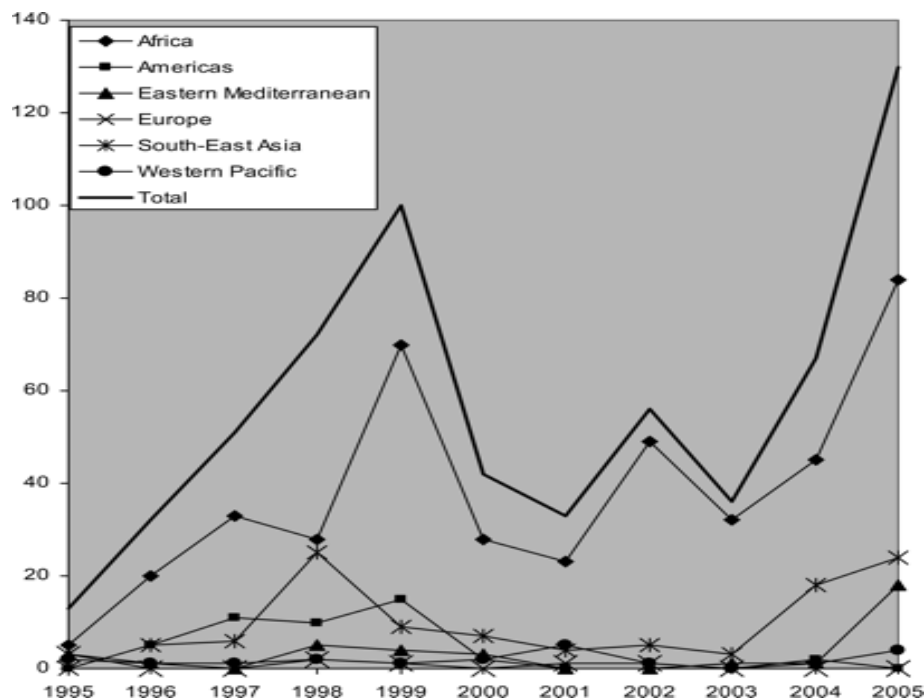


Fig 7: Distribution of cholera cases for the period 1995 to 2005.

Source: Griffith *et al.* (2006). The figures are in thousands.

The above review by Griffith *et al.* (2006: 3), which covered a period of ten years (1995 to 2005), showed that 88% of the cases occurred in Sub Saharan Africa followed by Southeast Asia. The risk factors that contributed to the outbreak and spreading of cases included rainfall and flooding (33% & 39% respectively), refugees and/or internally displaced people (36%) and water source contamination (30%). These figures, however, varied from one region to another.

2.6 Cholera distribution in Africa

As mentioned above, Africa is under threat from cholera and would need a complete paradigm shift if this regretful trend is to be stopped. This shift is only feasible providing the leadership in the continent shows sincere political will for turning around their countries. Zimbabwean Association of Doctors for Human Rights (2009) quoting WHO (2009), reported some cholera outbreaks that were experienced in Africa. According to Kirigia *et al.* (2009: 1), in the year 2005 at least 125 018 cases of cholera were reported to WHO by countries in Africa. Two years later (2007) at least 178 677 cases were reported plus 4 033 deaths from across the world, but 62% of these cases and 56.7% of the deaths were from Africa. Table 1 gives a summary of some of the major cholera cases in Africa from 1991 to 2006. On average, the CFR for the continent was 1.8%. In 2006, WHO reported that cholera cases were generally on the increase in Africa, mainly in west and central Africa, especially the Great Lakes region. Some of the major outbreaks are shown in the Table 1.

TABLE 1: INDICATING REGIONAL DISTRIBUTION OF CHOLERA IN AFRICA

Region	Period	Country	Cases	Deaths	CFR
Western Africa	1991	Nigeria	59 478	7 654	12.9%
	2005	Senegal	31 719	458	1.4%
Central, East Africa	1994	DRC	*	40 000	*
	1997	Tanzania	40 249	2 231	5.5%
Southern Africa	1998	Mozambique	42 672	1 353	3.2%
	2006	South Africa	106 224	228	0.21%

Source: Compiled from Kirigia 2009; Nevondo, 2001; WHO, 2006.

* Figures not available

Kirigia (2009) used the above figures and estimated the economic loss to be around US\$39 million based on a life expectancy of 40 years and US\$53.2 million at 53 years.

2.7 Sources and transmission of the bacteria

▪ Human faeces

Human faeces are the major source of bacteria, especially *E.coli*, hence the need for proper disposal so that they do not facilitate the spreading of disease. A good working toilet or latrine is a must for every household so that disease transmission is minimised. Houseflies are one of the main carriers of pathogens (Eeckels *et al.*, 1996: 117), yet they thrive on faeces which become the breeding medium for pathogens. Other carriers of pathogens from human faeces include chickens, dogs and wild birds that may also deposit the pathogens in water bodies causing contamination. In many developing countries, raw sewer is discharged into water bodies without adequate treatment resulting in water contamination. Chances of getting infection are increased if the same water is consumed or used for preparing food. The use of soap removes most of the bacteria, hence the importance of hand washing after using the toilet and before handling food.

2.8 Mode of cholera bacteria transmission

a) Transmission by water

Contaminated water is the major source of the bacteria, but the bacteria would have come from human faeces in most cases. Christie (1987: 198) citing Barua, acknowledged polluted water wells as the main source of the bacteria during most cholera outbreaks. This concurred with cholera cases in Manicaland province of Zimbabwe during the 1974 and 1975 outbreak (Christie (1987: 198). This outbreak occurred after a borehole had broken down forcing people to resort to less hygienic sources. Szewzyk *et al.* (2000: 2) reported a similar viewpoint that faecal contamination of drinking water was most common in unprotected wells. Disasters like floods and earthquakes were also found to be responsible for creating conditions conducive to cholera disease. Usually after such

disasters, water treatment, supply and distribution systems break down resulting in human waste contaminating drinking water. More so, maintenance of these water and sanitation facilities in times of disasters like earthquakes and floods is compromised resulting in the contamination of domestic water.

Griffith *et al.* (2006: 4) looked at the main risk factors that contributed to the spreading of cholera outbreaks on a global basis. The findings were that 29% of the infected cases were from contaminated water sources, 25% were attributed to rainfall and flooding, whilst 13% of the cases were from refugee camps. The analysis shows that water in general is the major source since surface and ground water could be grouped together putting their combined contribution to 54%.

In urban areas, shallow wells and unprotected water collection points are dangerous sources of the bacteria. Rural areas, especially in developing countries, generally face a challenge of accessing clean water. The majority of them draw their water for domestic use from unsafe sources such as rivers which may be contaminated by raw sewer and/or faeces, thereby putting their lives at risk. WHO (1997: 377) estimated that poor sanitation and lack of access to clean water and adequate personal hygiene were responsible for at least 90% of childhood diarrhoea worldwide.

The access to sanitation in Zimbabwe is a big challenge, especially now considering that the country has been in a humanitarian and economic crisis (Martin: 2008) for more than a decade. The United Nations Children's Fund (UNICEF) reported that more than half of the population had no access to improved sanitation facilities and at least a quarter of the population had no access to sanitation facilities (UNICEF, 2010). With this very low coverage of sanitation, communities had to find alternative means like open defecation, which is common in rural areas of the country. In fact, according to NewZimSituation (2010), Zimbabwe was rated as one of the countries with the highest open defecation rate in the world by a World Bank expert. Open defecation includes all those people who use the bush, which is a common practice in rural areas of less developed countries like

Zimbabwe, yet the bacteria can survive in human waste for a long period and then be transmitted by flies.

What this implies is that once the rainy season starts, human waste is washed into rivers by runoff and also into underground water through seepage, contributing to water contamination.

b) Transmission by food

Contaminated food can transmit the cholera bacteria, but usually it would be from water used to cook or wash the utensils. People who eat in restaurants and fast foods take-aways are at a higher risk of contracting cholera, because these outlets often fail to meet the minimum health standards required by the regulatory authorities.

Vegetables and meat transmit cholera bacteria in different ways because the bacteria can survive in them for different periods. Researchers have tried to distinguish the different periods that the bacteria can survive in vegetables and in meat and found out that it is significantly shorter in the former compared to the latter. Christie (1987: 199) reported that bacteria did not survive for long in acidic fruits. In other fruits, survival is relatively a little bit longer, varying from a few days to a week. For instance, it survives for just one day in oranges, tomatoes and grapes, two days in bananas, three days in onions and peas and then eight days in potatoes. That is why human rights activists challenge the rationale of local authorities to spend time and resources trying to destroy fruits in transit to a selling point, especially if they are arriving days later at their final destination of consumption. By then, the bacteria would have died.

However, the same cannot be said with regards to the survival period in animal and fish products, in which the bacteria lives longer. For instance, in milk and salted fish and meat, bacteria can survive for up to one month. Fish is one of the most favourable hosts of the cholera bacteria. Reports of people dying of cholera after eating fish are very common, especially in developing countries. According to Bockenmuhl *et al.* (1974) in

Christie (1987: 198), fish was responsible for 67.7% of cases in Togo when a major outbreak was experienced.

c) Transmission from one person to another

There is need to establish whether people can transmit bacteria to other people because they are mobile and they also have physical contact with each other, creating an opportunity for passing on the pathogens. Research has shown that very few cholera cases could be attributed to having been spread from one person to another. According to Christie (1987: 199) only four per cent to 20% of cholera cases could be attributed to physical contact with an infected person.

Possibly the incidences could be higher for children due to faecal-oral infection. For instance, in the Philippines it was established that infections within family members was around 13.6%, 8.4% within the neighbourhood and as low as 0.3% within a community. In Sri Lanka only 5.4% were infected due to contact with family members. Person to person infection was also confirmed in Hamburg, Germany during the 1892 cholera outbreak (Christie, 1987: 198). Farrell in Christie (1987) analysed the marriage status of infected people in Zimbabwe during the 1974 to 1975 cholera outbreak. The findings showed that more than half of the patients were single, and in most cases staying alone thereby limiting the chances of spreading the disease to other family members within the household.

Based on the above figures, it suffices to conclude that although people can transmit infection to others, there is less chance of such a kind of transmission taking place. That is why the system of quarantining people is confined to those already infected and not those coming from a cholera infected area.

Christie (1987: 199) further established that transmission of cholera pathogens could also be through sweat. This includes sweat-soaked clothing. A typical example was a research

that was done on gold miners in South Africa where miners were exposed to hot, humid conditions resulting in spreading of the cholera through sweat.

d) Transmission within a group of people

Cholera outbreaks usually occur where there are larger gatherings of people, especially where water and sanitation facilities are stretched and compromised. Reese and Douglas (1986: 76) reported an association of the outbreaks with the annual Hadj to Mecca. Other festivals and pilgrims that have been linked to the outbreak of the disease are those taking place periodically in India, Saudi Arabia and Egypt. Similar outbreaks have also been reported in Zimbabwe when large religious conventions take place. These include the Johanne Marange Apostolic sect that gathers in Marange (Manicaland Province) and the annual Besnai Congregation of the Wimbo sect that meets in Mount Darwin (Mashonaland province) for religious purposes.

Barua in Christie (1987) reported the link between cholera and funerals. This aspect was adequately documented in Ghana. In Zimbabwe, culturally people shake hands at funerals as a gesture of mourning with the bereaved. That is why the Ministry of Health and Child Welfare and its partners in the health sector discouraged hand shaking at funerals as part of the campaign strategies to reduce spreading of cholera during epidemics.

e) Carriers of cholera bacteria

Carriers are defined as persons who have pathogenic organisms without showing clinical symptoms of the disease (Felsenfeld, 1966: 177). Although person to person cholera transmission is known to be minimal, the role of carriers should be taken equally seriously because they also transmit the cholera bacteria in one way or another. It is important because countries are not required to report incidences of carriers to WHO which is the case with fully blown cholera cases. The challenge with carriers as reported by Mims (1982: 232) is that they harbour bacteria that are less readily inactivated and as such they are more easily spreading from source to host. This view is supported by WHO (2004: 46) when it highlighted that drinking water might be contaminated by hands and

bodies of asymptomatic people. According to Gorbach, *et al.* (1998: 741) resistant strains can occasionally cause epidemics yet carriers are known to be responsible for resurgence of new strains of bacteria. Christie (1987: 203) puts the prevalence rate of carriers at five per cent to 20% of the population infected.

2.9 Catalytic factors of bacteria transmission

a) Seasonality of cholera bacteria

There is strong evidence that cholera outbreaks are seasonal depending on weather patterns. Most of the time, the disease is associated with unusually wet seasons when human waste is facilitated to flow ending up contaminating water. Two different schools of thought exist with regards to seasonality of cholera outbreaks. The International Committee of the Red Cross (ICRC) in Irin *et al.* (26 May 2009), harbours the view that the disease has a historical context and is linked to specific seasons and bio-geographical zones. This point of view is rational and logical considering the predictability of human behaviour in each geographical area. For instance, some rural communities in Zimbabwe fetch their domestic water from river beds during summer, thereby increasing their chance of contracting the disease. Where toilets are not readily available, people deposit their faeces in places of convenience like the bushes, from where human faeces get washed away by runoff during the rainy season. The faeces are then finally deposited in low lying areas including water bodies.

Although researchers have linked occurrence of cholera to the onset of the rainy season, others have disputed this link arguing that the most critical condition is temperature rather than rains. However, in each country there is a period when the outbreak is commonly experienced. In Korea outbreaks have occurred during the coldest months and in the Philippines, they have occurred during the rainy season. Zimbabwe usually experiences cholera problems during the rainy season (Christie, 1987: 200). However, Farrell (1976) clarifies this point by emphasising the lack of safe clean water as the main problem which forces people to use alternative water sources that may be contaminated with the cholera bacteria.

Thus the issue of seasonality is just a catalytic factor although others see cholera as a season specific disease. Christie (1987: 200) argued that season and climate did not affect the spreading of the cholera bacteria, but lack of clean water did. Similarly, even if cholera seems to be a disease of the tropical, hot and humid regions, the problem is not the humidity of the region but overcrowding, poor sanitation and polluted water. This argument is similar to that of Farrell (1976) that with or without rains, people will get cholera if they are forced to use water sources that are contaminated. Outbreak of cholera during the rainy season is therefore caused mainly by faecal contamination of water sources. The onset of the rain season therefore creates an environment conducive to the spreading of the disease. Seasonality is a necessary but not sufficient condition for the spreading of cholera bacteria in most ecological regions.

b) Relationship between age and cholera attack

It is also important to find out whether cholera affects people within various age groups differently or in the same manner. A review of literature indicates that in some instances, cholera reports disaggregated data by age groups whilst some reports did not. Most of the reports that did so could not convincingly conclude if the cholera bacteria favoured a particular age group or not.

Felsenfeld (1966: 171) reported that during the Second World War, cholera killed several people in Asia and that was after a massive movement of armies and refugees. The majority of the people who died were mainly children and old people, possibly due to their compromised immune system especially to underlying diseases and to other complications linked to these two age groups. These findings were similar to those reported in Basu Mallik (1976) and Palmer *et al.* in Christie (1987: 200), when more children were infected compared to adults although those above 40 years of age were also significantly attacked. Yoshikawa *et al.* (1980, 395) reported a higher mortality rate amongst children. The Journal of Environmental Health (1 November, 2000) also

reported a high mortality rate especially of young children as a result of severe diarrhoea as a result of cholera.

Possibly the preferential infection of children has more to do with their susceptibility to diseases and how they easily succumb to disease attacks. On the other hand, adults especially those in the middle age category generally build up immunity due to minor repeated attacks whilst children may be attacked for the first time. The elderly are also vulnerable as they easily succumb to diseases just like children.

The above findings do not concur with results from other analyses where different scenarios were established. According to Barua in Christie (1987: 200), when a cholera outbreak was experienced in Italy in 1973, more adults were infected. The average age of patients was 52 years on the East Coast and 53 years on the West and very few children were attacked. A similar trend was established in Africa during the 1970 to 1971 outbreak when more adults were attacked. Again in Israel during the 1970 outbreak, more adults between the ages of 15 and 44 years were infected. Suarez and Bradford (1993: 12) assessed the age groups of the people attacked by cholera in Peru in 1991 and 1992, and found out that the majority of them (61.2%) were in the 15 to 54 years range. At least 12.6% of them were children under the age of 14 years.

Similarly, Dizon (1965: 631) reported a slightly higher infection rate for males above 40 years compared to females of similar age. After the El Nino rains in Chato village of Tanzania during the 1997/8 season, the 19 people who died of cholera were all adults.

The above findings show that cholera attacks do not discriminate on the basis of age, and as such cannot directly be associated with any particular age. Thus the link between age and cholera attack is rather weak. This is so because no one would be able to predict the pattern of attack with respect to age groups with accuracy. Each situation should therefore be considered on its own merit, taking cognisance of the pertaining context at the time of the outbreak. For example, if the source of infection is food, then more adults would be expected to be attacked since they consume more food compared to children.

c) Relationship between gender and cholera

Another aspect that needs closer scrutiny is the relationship between gender and a cholera attack. The Inter Agency Standing Committee (IASC) gender handbook (2006: 1), defines gender as the social difference between females and males throughout the life cycle and though deeply rooted in every culture, is changeable over time and has wide variations both within and between cultures. Therefore gender can simply be understood as the socially constructed roles and division of labour between and among women, men and boys including their power relations and all these aspects may influence disease infection patterns. Felsenfeld (1966: 171) reported that during the cholera outbreak of the Second World War, women were also mostly affected because they were responsible for water and sanitation issues at home including washing of clothes and children. They were always in contact with water in the process of executing their gender roles.

Christie (1987: 200) reported that in the 1970 cholera outbreak in Israel, more men than women were infected but with minor variations, and that was attributed to exposure of adults during their work or occupation. However, the disease appeared to have no effect especially in the first six months of pregnancy but in the last three months where mortality could be as high as 50% (Christie, 1987: 212).

Dizon (1965: 631) wrote that in the Philippines during the 1961 to 1962 cholera outbreak, for both sexes, attacks were more than double for ages over 20 years rather than under. Available literature has not managed to clearly distinguish if cholera has different effects on boys and girls besides just grouping them together under the umbrella name of children.

Enarson (2006) tried to link the low infection rates in women recorded during some cholera outbreaks to how they perceive risks. He noted that women were found to be more risk averse and more likely to take self-protective measures than men. Women also work through well organized networks, which enhance information sharing and they

are also more likely to participate in community-based activities that address environmental hazards in their area.

Therefore from the literature reviewed, it is apparent that socio-economic factors and gender roles play a significant role in the transmission of the disease. Infection therefore depends on how people are exposed to the hazard, and how they apply the coping practices to reduce the perceived and real risks.

d) Nutrition status and cholera attack

According to the Zimbabwe Vulnerability Assessment Report (2009: 9), although there was an improvement in household cereal production in the 2008/09 agricultural season compared to 2007/08, at least 33% of the household remained food insecure throughout the country at the time of the cholera outbreak. More than 41% of urban families had an inadequate diet and needed to be assisted to access food.

One of the key aspects of food security is nutrition. This aspect considers more the quality and not quantity of the food available and consumed by an individual. Prevalence of malnutrition in a population is used as proxy indicator of how healthy that community is. It is therefore critical to review the nutritional status of the population in Zimbabwe at the time of the cholera outbreak because it may affect the course of the disease once the person is ill.

According to a national nutritional assessment that was conducted by the Food and Nutrition Council (2010) by the end of 2009, the national chronic malnutrition remained unacceptably high at 33.8%. This figure is congruent with the Zimbabwe Vulnerability Assessment Committee findings mentioned above in terms of quantity of food available in the households. People in the chronic malnutrition category easily succumb to diseases, hence the need for government and other humanitarian agencies to provide supplementary feeding when populations are in such need.

Although it may be inconclusive to establish a direct link between cholera and nutritional status of the patients, the ICRC in Irin (26 May 2009) linked the high fatality rate to the food crisis that meant inadequate nutrition for people living with the virus even those on Antiretroviral therapy (ART). Although progress was recorded in terms of putting more people on ART, the gap is still very big.

This was reflected in the progress report on HIV and AIDS submitted to the United Nations General Assembly Special Session by the Government of Zimbabwe (GoZ) showing that by December 2008, at least 39.7% of people were on ART and this figure increased to 56.8% by November 2009 (GoZ, 2008-2009: 18). The inference between nutrition and disease infection is critical for Zimbabwe considering that the HIV prevalence rate is estimated at 13.6% or at least 1, 7 million people (USAID, 2008).

e) Social and economic factors

A number of social aspects could also be linked to disease attacks, especially infectious ones like cholera. Felsenfeld (1966: 176) reported that cholera was more likely to attack low income earners, who in most cases are the majority of people living in slums and informal settlements. Such settlements are created by people who may have moved into an urban area in search of employment opportunities, but they fail to be absorbed by industry and commerce. At the end of the day, these people fail to secure accommodation in properly established suburban areas, ending up constructing their own makeshift houses in undesignated areas. Since these areas would be illegal, the local authority would not be in a position to provide water and sewer infrastructure.

Even if temporary water and sanitation facilities are eventually provided in informal settlements, these will not be up to standard. They may be too few for the number of people in the whole area due to limited resources. At times there is lack of information on the correct number of people in the settlement rendering planning ineffective. More so, people who normally occupy these areas are very mobile as they move from one area to

another looking for livelihood opportunities. In some instances, the technologies used would be inappropriate for the people and the conditions in the area.

Howard (1996: 2) observes that sanitation facilities provided for low income areas are often a transfer of technologies with designs and construction qualities that are inappropriate for densely populated areas. This implies that the same sanitation technologies that are used for the up-market are used for the poor without much adaptation aimed at ensuring that they are suitable to the environment. A good example is the flush toilet that was designed with the assumption that water would always be available yet in developing countries like Zimbabwe water may hardly be available in some areas as was the case during the 2008/9 cholera outbreak. That increased the health risk of the residents.

The social status of people who travel by air is generally considered as being above average. In fact, travellers who can afford airfares are not low income earners since generally they can afford a decent life. Yet there were instances when cholera infected people in aeroplanes. These observations enabled Christie (1987: 202) to conclude that air travel or luxury travel generally carries a small risk of infection by cholera. He cited an incident in which passengers were travelling from England to Australia when 25 of them were infected resulting in one death. At that time 22 others had asymptomatic infections. The source of that contamination was linked to water and food.

f) Access to information

Access to relevant information at the right time is critical for any community to be able to make informed decisions. Unfortunately public health information is usually disseminated when there is a disease outbreak. These reactive approaches are not effective because the messages may be socially and culturally inappropriate for the targeted communities since in most cases they may have been predesigned. More so the media used may not be accessible due to various barriers, especially in Zimbabwe where media diversity is generally restricted. In an assessment that was done in Chato village,

Tanzania, Yanda *et al.* (2005: 22) reported more people (37.2%) as having heard about dangers of drinking untreated water from health services as indicated in Figure 2.

Schools were next in line for the same messages where they were responsible for 24.6%, followed by media (print, audio and visual) at only 17.6%. At the lower levels were informal sources at 13.6% and lastly community campaigns at 7%. With this information promoters of public health information are able to target their audiences with appropriate messages and achieve better coverage. For instance, the messages that may be used for schools may not necessarily be similar to those used during community campaigns. For information to be effective, it should be targeted at the right target group with the most appealing messages at the right time.

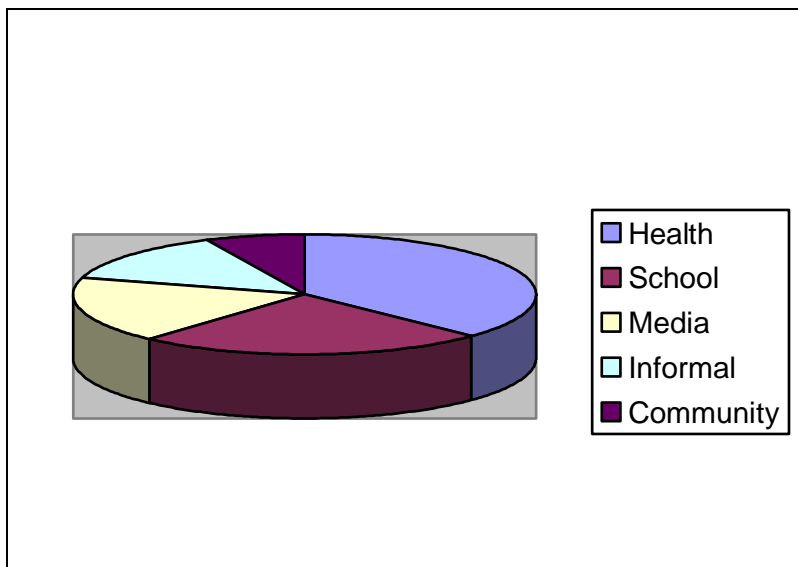


Figure 2: Sources of information about cholera, Chato village, Tanzania
Source: Yanda *et al.* 2005

g) Environmental factors

The physical environment where people live is critical for people to live a healthy life. Cholera outbreaks usually occur in environments that lack good sanitation and clean water. Such environments are characterised by overcrowding and squalidness. The Department of the Environment and Sustainable Development (1994) defines the environment as the external condition or surroundings in which people, plants and animals live, which tend to influence their development and behaviour. It includes air,

water, soil and natural resources like land and manmade developments such as infrastructure. Therefore people who live in slumps, overcrowded and squalid settlements are vulnerable to infectious diseases like cholera. Their risk is higher compared to those living in formally designated and serviced locations.

The Chartered Institute of Environmental Health (1997) stresses the fact that human beings can only be healthy in a healthy environment. This point need not be overemphasised since it has already been adequately outlined above when it was demonstrated that cholera was and still is a disease of developing countries, Africa and Asia in particular where sanitation conditions are compromised. Although it is the responsibility of communities to ensure that the physical environment in which they live is clean, local authorities should equally perform their role of regularly collecting waste including maintaining drainage systems so that they are not blocked. Sewerage systems should also be kept intact and functioning properly in order to minimize spreading of diseases such as cholera.

In order for the residents (the claim holders) and the local authorities (the duty bearers) to work together in a sustainable way, there is need for sincere consultation so that each entity plays its role. It becomes easier and cost effective to implement a system that is holistic since most concerns of the stakeholders would have been taken care of. In this regard, British Medical Association (1999: 5) urges local authorities to develop techniques that integrate environmental health impact assessments as a way of showing the importance of emphasizing the interdependence between healthy environment and healthy populations. More so, such approaches facilitate mutual sharing of responsibilities and roles because challenges of each partner would have been shared, appreciated and addressed.

2.10 Mitigating and coping measures

a) Case management during cholera epidemics

As mentioned earlier on that a CFR of 1% one per cent and below is acceptable under WHO guidelines. Any CFR above that should be thoroughly investigated. Jamison *et al.* (2006: 377) considers a CFR of above one per cent 1% as an indicator of inappropriate case management. The mere fact that a higher CFR ratio, in relative terms entails death of more human beings, yet a single death is not warranted and therefore a cause for concern – it should put the whole nation in an emergency mode. Lives should not be lost due to a simple and curable disease like cholera.

As for Zimbabwe, Batta and Mgemzulu (2009) reported that the CFR was 5.1% in 1992 and it increased to 6.7% during the 1993 cholera outbreak. The situation was even worse in 1999 when the CFR reached the all time high level of 6.8% but slightly declined to 6.1% in 2002. The outbreaks of 2008/9 under investigation had an average CFR of 1.7% although it had the highest number of cases and deaths in the history of the country.

Kakar (2008: 18) demonstrated a success story in Afghanistan of containing cholera. This success was based on the way the response strategy was designed and subsequently executed by following certain critical but simple routines. Essentially, the approach was supported by a massive and extensive behavioural change programme that was meant to promote personal hygiene and safe water practices. Distribution of ORS, chlorine tablets and liquid chlorine was decentralised to the household level. The house to house hygiene education meetings that were conducted in areas affected by cholera targeted everyone who resided in the affected areas. Since water was central to the problem at hand, there was also need to ensure its quality was according to the required standard. As such, periodic water testing was done by experts. Water was treated with chlorine at source, especially where it was drawn from shallow wells.

Information, education and communication (IEC) campaigns were done with the target communities in mind. When it was established that the cases were increasing, additional

sentinel surveillance sites were set at hospitals and clinics for acute watery diarrhoea. This is the type of diarrhoea that requires treatment other than ORT. New cases were recorded and then reported to authorities on a daily basis.

There was improved coordination and meaningful involvement of strategic stakeholders that performed various roles. Owing to these routines, when there was a cholera outbreak in 2005, which infected at least 65 605 people in one province, only six died representing a CFR of 0.1%. In the same year, 82 000 cholera cases were reported in another province and only 110 died to give a CFR of 0.13%. Similarly, later in the same year there was another outbreak that infected 144 605 people resulting in the death of 170, representing a CFR of 0.12%. All the above CFRs were below the WHO acceptable standard of 1%, showing how effective the response and case management was.

The Afghanistan case study above serves to highlight coping strategies that were successfully used in curbing the cholera epidemic. These included the following:

- Massive and extensive behavioural exchange programmes.
- Personal hygiene and safe water practices.
- House to house hygiene education meetings.
- Information, education and communication (IEC) campaigns.
- Water treatment with chlorine at source.

b) Public health education

Often communities have limited understanding of the connection between poor sanitation and poor health due to lack of appropriate education and awareness. As such, public health education should be carried out as one of the strategies for preventing the spread of cholera. It is, however, critical to note that although public health education is meant to change the mindset, the change is often painful and slow and usually happens in certain sections of the community only.

Rowland and Cooper (1983: 195) articulated the need for promoters of public health education not to take it as a simple matter of changing the way people behave because culture and social influences are strong habits which become deep-rooted and even addictive. This is so because concepts are passed from one generation to the next using different ways, and it becomes part of their way of living. Therefore those who intend to promote public health education should realize the need for long-term investment in the process, in order to achieve the expected outcomes. Effective public education campaigns are therefore not once off events, they are costly and time consuming processes.

Therefore public health education should not be simply to distribute information, education and communication materials and pass messages, but should be a well planned action-oriented task that even challenges certain beliefs. For instance, communities should be educated on how best to dispose solid waste, especially faeces since they are the main sources of the cholera bacteria. In fact, excreta disposal was found out to be one of the most important preventative health intervention strategies. People may not see the value of investing in health related issues; therefore as suggested by Smith (1999: 300), public health education should be designed to assist people to value health as a quality of life.

Huttly *et al.* (1997) argued that proper hand washing could reduce diarrhoeal incidences by at least 33% and therefore it should be incorporated in the public health education programme. It is against this background that the United Nations has set aside the 15th of every October to commemorate Global Hand Washing.

c) Physical Treatment

Since the patients lose a lot of fluids due to continuous diarrhoeal discharges, there is need for rehydration or oral nutrition as soon as possible. In most cases cholera is treated by use of oral rehydration therapy, which is a solution containing mainly glucose and electrolytes so that the lost fluids and electrolytes are replaced. Kakar (2008) estimated that at least 80-90% of the cases should normally be treated with simple ORS so that the

remaining 20% (severe cases) are treated with intravenous fluids. Communities should be encouraged to make their own ORT and seek early treatment. Considering that ORT is not expensive and could easily be made readily available, vaccines are therefore not a priority.

Vaccines against cholera are generally not recommended even for travellers because at most they provide 50% protection. That is why international vaccinations against cholera are no longer a requirement (Reese *et al.*, 1986: 740). More importantly, vaccines are not even recommended for children under two years of age. However, immunizations against the disease may be done mainly in natural disaster situations rather than for the normal prevention of the endemic. In fact, according to Christie (1987: 379) breastfeeding is said to provide protection, and that cholera cases are rare in infants who are nursing.

Salisbury *et al.* (2006: 101) pointed out that known registered vaccination drugs for cholera are normally used by travellers in the United Kingdom. Gorbach *et al.* (1998: 742) also cited availability of two types of vaccines. The first one is an oral vaccine whilst the second one is a live attenuated vaccine. However, most of the literature points out that present cholera vaccination provide protection for a very short duration of about six months, yet Gorbach *et al.* (1998: 742) state that protection could be for several years.

Nevertheless, vaccinations may generally be used for those who are most at risk including elderly people and children who are above two years of age, only if their risk is increased by travelling. Brettle and Thomas (1984: 10) remark that although vaccines can prevent illness in an individual they, however, do not prevent spreading of endemic cases. This is so because the infection usually originates from a public source like water, hence the need to address the problem at source.

Although some recommend vaccination of health personnel working in conditions where there are no basic health care services, Christie (1987) reported that changes of hospital staff being infected was low, even those working at cholera treatment centres without

adequate basic health facilities. In most cases health personnel are trained and they take prevention precautions such as washing hands with soap.

The ideal procedure is to strive to prevent the outbreak of cholera by all means. However, should an outbreak occur then treatment should be done promptly in order to save lives. Thereafter there is need to rehabilitate the patient so that normalcy is restored.

d) Institutional arrangements

The success of responding to disasters and subsequent mitigation actions depend largely on the institutional arrangements available for that purpose. Multi stakeholder approaches are therefore encouraged whenever there is a disaster, and this should be a product of a well planned and executed stakeholder analysis and mapping. In Zimbabwe, the Civil Protection Unit (CPU) that was established (Zimbabwe. Civil Protection Act: 1989: 2) was mandated to rally every relevant government ministry and/or department whenever there was a disaster. This ensures that national, provincial and district disasters are approached from an Inter Ministerial point of view. Other stakeholders, mainly non state actors are invited to join the various subcommittees that are set under the leadership of the CPU.

As observed by Saywell *et al.* (1998: 22) often government departments may not be the best placed to provide the required technical support or even the time. The teaming up with civil society organizations brings in the much needed capacities to deal with the problem at hand. That is why governments can even engage NGOs and the private sector to carry out certain tasks, provided the terms of reference for each assignment are clearly spelt out and agreed upon. However, these arrangements should recognise the need to ensure that parallel structures are not created to antagonise and undermine legitimate roles of governments and local authorities. Equally important is to make sure that the approaches used by the outsourced agencies are not far removed from the communities, otherwise they become ineffective and inefficient.

Although government departments may usually lack both adequately trained staff and access to sufficient funds as highlighted by Howard (1996: 3), government remains overall accountable and answerable to its people even in cases where NGOs and the private sector are contracted to perform certain roles.

During the 2008/9 cholera outbreak in Zimbabwe, there was a realization that response strategies by the various agencies needed to be coordinated. In this case, the Cholera Control and Command Centre (C4) was created (WHO, 2009: 2) as a national coordination mechanism, mainly for the government and international humanitarian agencies. It was chaired by the Ministry of Health and Child Welfare, being deputized by WHO. This was an additional structure to the government task force that was established in August 2008, with representation from different ministries.

In many instances, the institutional arrangements in the water, sanitation and hygiene (WASH) sector were dominated by United Nations systems and procedures through the WASH Cluster. Some of the roles of this cluster as outlined in the WASH cluster handbook by Redruk (2009: 24), include coordination, programming and contributing to the coherence of the overall emergency strategy; liaising with government, supporting joint assessments, policy guidelines, interpreting and establishing technical guidelines within the WASH cluster. In Zimbabwe the WASH cluster was coordinated by UNICEF, but there was limited participation by local agencies.

Unfortunately many research findings have established that governments through their Ministries of Health are unlikely to be the most appropriate agencies to provide good sanitary conditions for the populations. Worse still, they are usually found wanting when there are disease outbreaks such as cholera. Yet similarly, according to Saywell, *et al.* (1998: 24) even NGOs often do not have huge budgets required for bigger interventions. This could be the reason why they do not address the root cause of the problem like rehabilitation of water and sanitation infrastructure in Zimbabwe when the 2008 cholera epidemic occurred.

e) Prevention

In line with the common saying of “prevention is better than cure”, disease prevention should be the top priority of every individual and/or organization. For a population to live a healthy life, the need to invest in disease prevention strategies should not be underplayed. The British Medical Association (1999: 4) pointed out the importance of addressing a number of factors including genetic predisposition, lifestyle, nutrition, social economic status, access to adequate health care and the environment for a community to benefit from a healthy life. This point of view considers health in its broader sense so that emphasis is placed more on the quality of the environment which affects all sectors of the society especially those of deprived groups. Therefore prevention programmes should not look at direct variables alone, but all the environmental factors that affect the person in total. Some of these factors are the root causes as outlined in the Pressure and Release (PAL) model covered later in this document.

Rowland and Cooper (1983: 3) allude to the need to understand, recognize and avoid environmental factors that are associated with being in the high risk parts of the spectrum of the hazard. Often these factors are largely a result of human actions which create health hazards that eventually disrupt normal functioning of individual and communities at large. In the case of cholera outbreaks, it was pointed out that lack of clean water and sanitation facilities were the main problems. However, these services may not be available due to other indirect challenges such as inappropriate policies on public health issues. Hence there is the need to try and establish connections between and among dependent factors in order to come up with a sustainable strategy for disease prevention.

Lack of appropriate information may be one major reason why people contract infectious diseases like cholera. It may be very basic information that they should apply on a daily basis. This information could be acquired at home or from the nearest health institution, provided it is functioning properly. More importantly, the information should be relevant and appropriate to the intended user so that it evokes behavioural change. According to the Sphere Project (2004: 60) hygiene promotion messages and activities should address

key behaviours and misconceptions of the user groups, hence the need for consulting them.

There is a well known saying that says, “Water is life”, and surely it is. Szewzyk *et al.* (2000: 2) equated drinking water to food, stressing the importance of adhering to high standards for its quality and safety. This aspect is part of the Sphere minimum standards on water supply (Sphere Project, 2004: 66), which requires the water to be palatable and of sufficient quantity for use. It is against this background that bacterial content in drinking water should be very low to the point where it has no detectable pathogenic microorganisms so that the risk of waterborne infections is reduced. More so, the water should be free from faecal coli form bacteria, otherwise a treatment regime should be activated before it is used for human consumption. Brettle and Thomas (1984: 22) urged people to ensure that even the water they use to brush teeth is boiled when suspecting that it is contaminated.

f) Meeting minimum water requirement standards

Equally important is to ensure that at least 15 litres of clean water per person per day are accessible within reasonable distance of 500 meters radius (Sphere Project, 2004: 63). Failure to meet these minimum standards compromise preventive measures because people may resort to nearby sources which may not meet the quality standards. Gorbach, *et al.* (1998: 742) encourage travellers to carry with them safe bottled or boiled water and avoid high risk drinks and foods especially seafood and food from street vendors. The challenge is for the low income earners and the very poor who cannot even afford to pay for the energy needed to boil the water so that they reduce risk of infection.

g) Efficient excreta disposal systems

Another key aspect of cholera disease prevention is excreta disposal. This aspect is of key importance considering that the cholera bacteria are generally spread by human faeces which then contaminate either water or food. The Sphere Project (2004: 71) recognises

the need to provide appropriate and adequate facilities for defecation, in order to uphold people's dignity, safety, health and well being. It is important that sanitation of these facilities be maintained, whether they are used communally or privately. In fact, working toilets should be viewed as both a preventative and response strategy. When designing these facilities, consideration should be taken to ensure that they are accessible to various groups of people including women, children and people with disabilities.

h) Personal Hygiene

Considering that infections spread more due to inefficient sanitation and bad personal toilet hygiene, it should be everyone's responsibility to practise personal hygiene. Rowland and Cooper (1983: 50) pointed out the need to make hand wash basins, soap and towels easily available for use after using the toilet. It is important at this point in time to specifically mention that the soap should be liquid, dripping so that bacteria are not transmitted from the soap to the person if tablet soap is used. Equally important is that hand towels should be personalised rather than sharing, ending up compromising on bacterial transmission. In situations where resources are limited, people should be encouraged to naturally dry their hands after washing with either soap or locally available disinfectants like ash.

i) Effective solid waste management (ESWM)

Solid waste management plays a significant part in minimising spreading of diseases. This type of waste includes industrial and household materials, which ideally should be collected and disposed of regularly. According to the Sphere Project (2004: 83) solid waste not only provides ambient breeding space for vectors, it also blocks drainage channels leading to environmental health problems associated with pollution of the surroundings. A serious hazard looms if toilets and sewer blockages including leaks are encountered in a situation where the drainage systems are not properly working. Therefore it is important for every household to have a waste collecting and disposal bin

or container for daily use. Where appropriate, solid waste may be burnt and/or buried at designated sites.

j) Preparedness levels

The high infection rates of cholera in Zimbabwe during the 2008/9 period and the subsequent high death rate were not justified. Although some early warning on the impending cholera outbreak was done, ZADHR (2009) raised concern that such forecasts regarding the possibility of cholera outbreaks were not taken seriously over the past few years. That showed that at least the early warning systems were working but the authorities somewhat ignored these warnings. They even responded late, after the disease had spread to several districts throughout the country.

In an ideal situation, communities and other key stakeholders should always be prepared to deal with the impact of future disasters. Such preparedness entails keeping contingency stocks at health centres in areas known to have high incidences of cholera outbreaks. Health personnel should be trained annually using the WHO case management guidelines. WHO (2004) developed practical guidelines for dealing with preparedness and response to infectious diseases such as cholera. Zimbabwe failed to use these guidelines for unknown reasons. ZADHR (2009) raised concerns that the government did not have the capacity to deal with the outbreaks hence it was “applying intervention methods instead of dealing with the causes of the problem”. Possibly this is one of the reasons why it took almost one year to contain the disease.

k) Prevailing conditions at the advent of cholera outbreak

The environment and general conditions which prevailed for over a decade were a time bomb for the general populace in Zimbabwe. Systems and structures for effective and improved water and sanitation had almost collapsed. Irin (2009: 1) reported that chances of resolving the cholera problem were remote because water, sanitation and health infrastructure systems had collapsed.

Saywell *et al.* (1998: 15) indentified three key incentive factors which could be used by municipalities to create an enabling environment to achieve sustainable sanitation coverage. These are based on the three “Rs”, namely rules, referees and rewards. The rules are meant to govern interactions within and between partners so that each of them executes their roles within a given framework. Referees are the administrators who ensure that all stakeholders are coordinated and operate within the given policy framework. In this case, the Ministry of Health and Child Welfare played that role with technical support from the water and sanitation cluster. It should be noted that rules are made by people and should be reviewed as and when necessary and this works well if there is active participation of key stakeholders. Last but not least, there should be a system for rewarding compliance and for penalising non-compliance.

It is against the above background that one may conclude that the government was not prepared when the cholera outbreak occurred. This may also be understood from the context that it was at a time when the economy had collapsed and the government coffers empty. This view is supported by comments made by a renowned economist Doctor Erick Block who was quoted in the *Zimbabwe Independent* (2009: 3), when he said, “Cholera exists more widely than do basic food supplies”.

The economy was described as having been gravely shattered and reduced to appallingly low levels and at the verge of total collapse. At the time of the outbreak, more people were already vulnerable since the country was food insecure. Shops were virtually empty. This was exacerbated by high HIV/AIDS prevalence. The Notational Aid Council of Zimbabwe reported that by end of 2009, the HIV/AIDS prevalence rate for Zimbabwe was 13.6%. Therefore government had no resources for maintaining and sustaining effective and efficient water and sanitation systems in the country since it had to deal with a multiplicity of teething problems.

Moreover in real terms, there was no legitimate government in place at the time of the cholera outbreak. Zimbabwe had just conducted presidential and parliamentary elections

in March 2008. The results failed to produce an ultimate winner for the country's president and as per law, a runoff had to be done. Before the runoff could be done in June 2008, political violence started forcing the other presidential candidate to withdraw from the race. Southern Africa Development Community (SADC) intervened by facilitating for a negotiated settlement which saw the three mainly political parties signing what they called the Global Political Agreement (GPA) in mid September 2008 (GoZ/GPA, 2008).

Unfortunately, it took unnecessarily longer to implement this agreement due to outstanding issues that needed to be clarified. It was only in early February 2009, when the three political parties in the GPA formed an inclusive government. Therefore for almost twelve months, there was no government yet all the socio-economic and political sectors needed urgent attention to save the country from total collapse. Zimbabwe was therefore not prepared for a disaster of such a scale, hence the unwarranted death of more than 4 000 people.

2.11 Health situation in Zimbabwe: a situation analysis

Before looking specifically at the cholera issue in the country, it should be acknowledged that the subject matter falls within the health sector. Therefore the performance of the health sector influences all issues relating to cholera outbreaks. Briefly, the health sector in Zimbabwe is characterized by a high HIV prevalence rate of 13.6% which contributed to the reduction of the life expectancy age to 35 years by 2008 (UNDP, 2009). Although the HIV prevalence rate has been on the decline, from 24.6% in 2003 to 13.6% in 2009, this figure is still very high especially among those 15 years old and above in view of the fact that not everyone is accessing antiretroviral drugs.

Though the decline should be celebrated, more effort should be put to improved access to basic health services including access to water and sanitation, appropriate information on sex and reproductive health. Even more financial resources should be channelled towards the health sector during each annual budgeting exercise as a commitment by the state. Figure 2.3 summarizes government priority in selected years with regards to allocation of

national resources to three key ministries in Zimbabwe. These three ministries have been getting the highest appropriations each year, showing where government priorities lay.

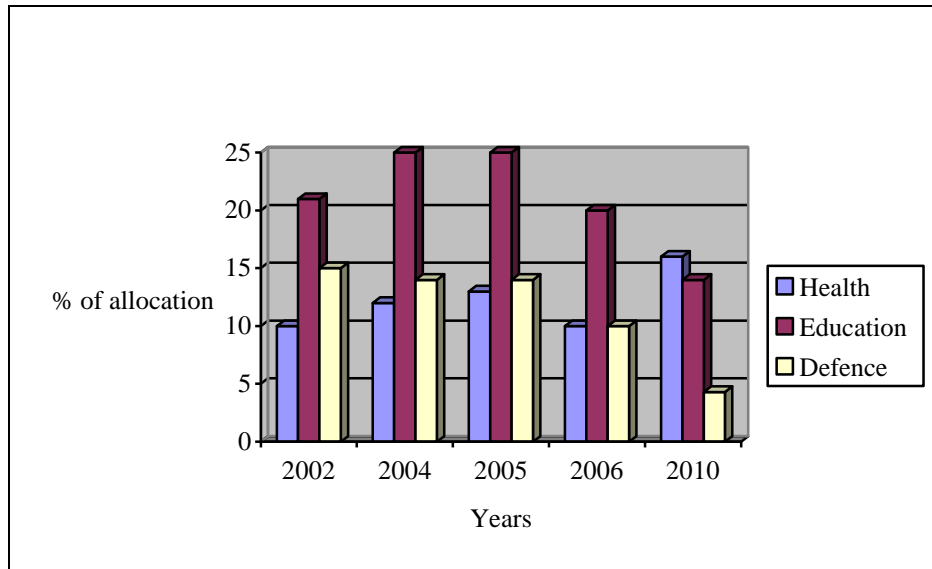


Figure 3: Annual budget allocation to ministries in Zimbabwe
Source: Various sources

From this graph, one can conclude that government prioritized education, followed by defence and then health services in that order. However, in the health sector additional resources come from the private sector and non-state actors that include international and local agencies to complement government efforts. Unfortunately, for the past decade now, these actors have not been bringing in significant resources into the country due to political impasse and economic decline which started in the year 2000. This view is supported by findings of Mafume (2006: 9), which showed that Zimbabwe was receiving a meagre \$4 per person living with the AIDS virus compared to the next lowest of \$39 for Lesotho and \$362 for Uganda, which is the highest from the Global Fund on an annual basis. Some argue that Zimbabwe was not getting adequate support from international donors due to targeted sanctions which were imposed on the country leadership belonging to one political party that has been in power since 1980.

Government sources of funding continued to decline due to negative economic growth as evidenced by annual inflation that reached 32 million per cent¹ by July 2008. On average, resources allocated to health services by government were 11% of national budget, which was below the SADC targets of at least 15%. As a result, the health sector has been facing challenges such as;

- Skills drain due to poor remuneration and conditions of service. Most qualified and experienced health personnel migrated to neighbouring countries and overseas looking for better opportunities.
- Shortage of basic drugs and equipment in general hospitals and clinics.
- Dilapidated infrastructure like buildings, equipment, telecommunication, transportation, road network and energy generation.

Zimbabwe could be moving in the right direction as indicated in the budgetary allocations for 2010, after the formation of the Inclusive Government. For the first time around, the Ministry of Health and Child Welfare got the highest vote of 16% (surpassing the SADC target), followed by Ministry of Education (14%). The Ministry of Defence was nowhere near after its allocated 4.3%. Presumably the aim was to try and shift government priorities and therefore reserve the challenges that have been bedevilling the health sector for a very long time.

Unfortunately the damage had already been done. By the end of 2008, the health situation was described as having been “gutted and reduced to ghost institutions” because most public health programmes had been grounded to a halt. With the above scenario, one wonders why the HIV prevalence rate had been on the decline in an economy that reached a near collapse point by end of 2008. The above is a brief context within which the cholera epidemic occurred in Zimbabwe. Cholera is an infectious disease of public

¹ This was the official figures from Central Statistical Office whilst independent sources estimated it to have surpassed the trillion per centage mark by December 2008. (The Financial Gazette, 17 January 2009)

interest. Its impact is worse if basic health services are compromised and constrained as was the case in Zimbabwe then.

2.12 Cholera in Zimbabwe

Focusing specifically on the cholera issue in Zimbabwe, a review conducted by Bata and Mgemzulu (2009) indicates that the first cholera case was recorded in Zimbabwe in 1972. Other outbreaks happened in 1992, with a high case fatality rate (CFR) of 5.1% and then in 1993 when the CFR went even higher to 6.7%. Thereafter there was a three year break until new cases occurred in 1998 and continued on an annual basis up to date. In 1999 the cases were very high when 5 637 people contracted the disease resulting in 385 deaths translating to 6.8% CFR. In 2002 the CFR was equally high at 6.1% when 192 people died after 3 125 people had contracted the disease. Most of these outbreaks were confined to Manicaland, Mashonaland East and Masvingo provinces, mainly in districts bordering Mozambique. Figure 4 gives an overview of the cholera cases in Zimbabwe from 1990 to 2009.

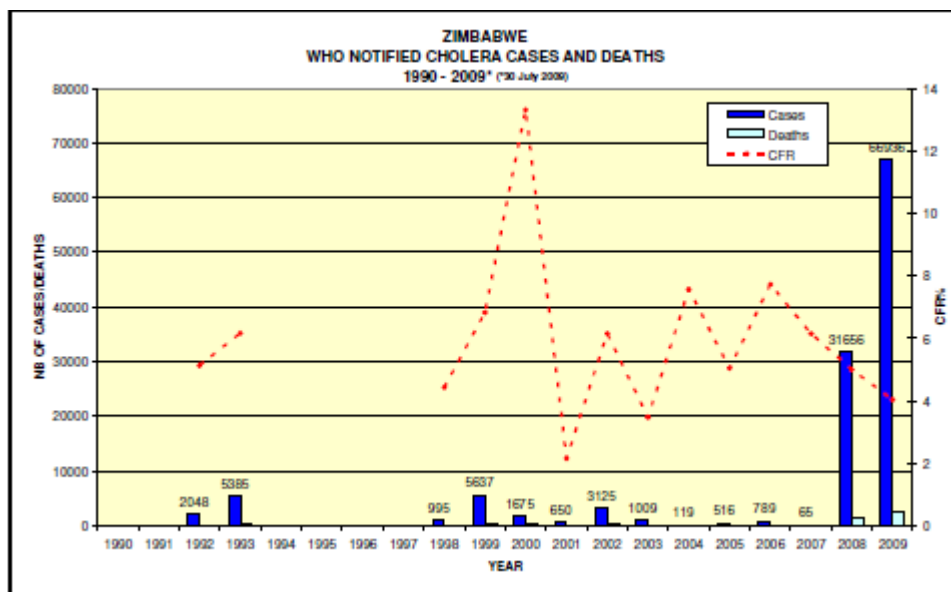


Figure 4: Cases of cholera outbreaks from 1990 to 2009
Source: WHO, 31 October, 2009.

From the above diagram, Figure 4, years that stand out distinctly with cholera cases above 1 000 are 1992, 1993, 1999, 2000 and 2002 excluding 2008 and 2009 which had astronomic figures. These last two years devastated the whole country when over 100 000 people were infected, whilst the government and its partners battled to stop the disease over a period of one year. In Zimbabwe, the agricultural rainy season starts in October each year and ends in April. There is a co-relationship between cholera outbreaks and the rainy season mainly due to the fact that cholera disease is a water and sanitation problem.

It was in August 2008 when the first cases were recorded and by the end of July 2009, at least 98 592 people had been infected and a total of 4 288 had died from the disease (WHO, 2010). This represented an institutional CFR of 1.7%, a figure still too high for a simple and treatable disease like cholera. According to WHO (2009: 1), Health Action in Crises highlights number 251 when the cholera institutional CFR peaked at 4.4% in March 2009. Batta and Mgemzulu (2009) reported that the proportion of community deaths was higher, accounting for 58.5% of reported total deaths. Budiriro suburb, located in the City of Harare was one of the areas that had the highest cases of infections and deaths as shown on the map in Figure 5.

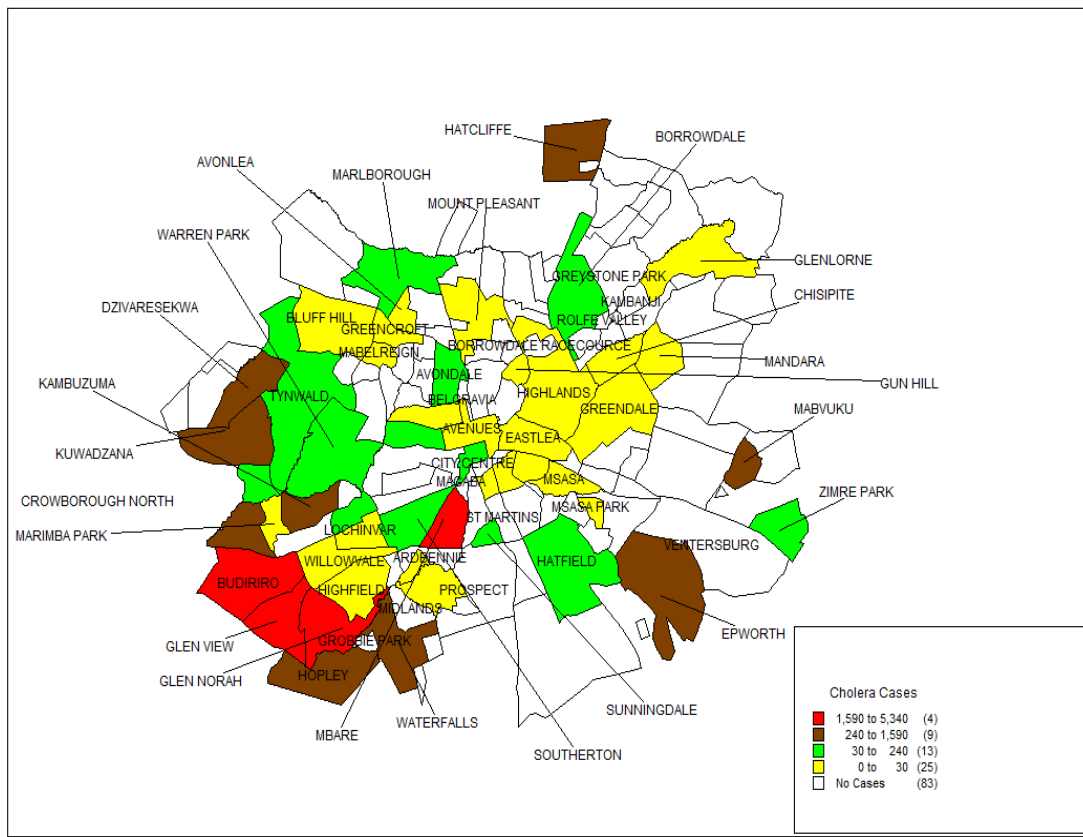


Figure 5: Map of Harare showing Budiriro with highest density of cholera cases.
 Source: Cholera Control & Command Centre, Harare.

The Zimbabwe Association of Doctors for Human Rights (2009) report noted that this was the “worst ever” cholera outbreak for Zimbabwe and possibly going “to become the worst on the African continent”. This remark was made in February 2009, at a time when cholera cases were 80 250, but eventually reached almost 100 000. The association accused government for failing to take forecasts on possibility of cholera outbreaks seriously over the past few years. In fact, the government initially denied that there was a cholera problem yet its response strategy was poor. According to *The Herald* (4 December 2008), the government only responded in December 2008, when the disease had spread to more areas.

There was no consensus on the extent of the problem, especially in government as demonstrated by conflicting statements that were issued to the public. First it was the

Minister of Health and Child Welfare who announced that cholera was on the decline, especially in Budiriro (*The Herald*, 4 November 2008). On the contrary, WHO (2008) refuted the minister's statement, and insisted that cholera was not yet under control. The controversy intensified when on 11 December, 2008, the state President claimed that cholera was "arrested" and therefore under control (BBC News, 11 December 2008). The government continued with its cavalier approach and denial tactics. The Minister of Information and Publicity even claimed that cholera was "*a serious biological-chemical weapon: a genocidal onslaught on the people of Zimbabwe by the British, still fighting to recolonize Zimbabwe and using their allies*" (Al Jazeera, 2008: 4).

The politicisation of cholera also affected the operating environment under which humanitarian agencies like NGOs worked as they were branded "agents of regime change." Government in fact had suspended field activities for NGOs in July 2008, alleging that they were influencing the voting pattern in favour of opposition political parties. In Zimbabwe, relations between government and NGOs have not been cordial for some time, even during the time of the cholera outbreak. For instance, it took Medecins sans Frontieres (MSF) weeks to be allowed to open an extra ward at the Beatrice Road Infectious Disease Hospital (MSF, 2009) due to the need to satisfy the bureaucracy in the government system. The hospital, which is owned by the government, was the national cholera command centre where serious cases were eventually treated after having gone through a referral system within the districts.

2.13 Impact

The impact of cholera was reported in Suarez and Bradford (1993: 12), after having observed that the 1991 to 1992 epidemic in Peru had differently attacked all the age groups. Considering that each age group plays a different role in society, the cholera impact is experienced differently. During that outbreak, 61% of the patients were in the 15 – 54 age group and they were usually the workforce. More importantly, 12.6% of the patients were under fourteen years of age, thus impacting negatively on the next generation.

Another negative impact included premature deaths across all age groups, cost of drugs and medical supplies, personnel costs for both full-time employees and volunteers. In addition, WHO (2009) underscored the need to consider costs for travel and hotel costs for health consultants, loss of production time (deaths, illnesses, caring for the sick and absenteeism from work). All these can be quantified into monetary value using various models, which are outside the scope of this research.

WHO (2010) identified some of the social factors that had an impact which included human suffering, pain, death, disruption of social and economic structure thereby negatively retarding sustainable development in the long run. The impact of a disaster is also known to have a gender dimension. According to IUCN (2007) when disasters like the cholera epidemic hit Zimbabwe in 2008, women's workload often increased as they spent more time caring for the sick and attending to other household duties.

If cholera cases reported from the Africa Region are anything to go by, then Africa is paying heavily for its inability to create an environment conducive to minimizing the outbreak of infectious diseases like cholera. An economic loss emanating from the 2005 outbreak which infected more than 125 018 people was done and estimated that the Africa Region suffered an economic loss of US\$39 million basing on life expectancy of 40 years and US\$53.2 million if the life expectancy is increased to 53 years (Kirigia *et al.*, 2009: 1). What this means is that resources are lost at all levels starting at the individual, family, community and country level. Government will have to finance some of these costs using taxes from the tax payers.

In terms of economic impact, Kuruvilla *et al.* in Tan (2008) reported that more than three million cases of cholera were estimated to have occurred throughout the world since the mid 1960s. Stine *et al.* (2008), raised concern that cholera was becoming one of the major illnesses in developing countries, and that at least 236 896 cases had been reported in 2006, an increase of 79% since 2005. In Peru the 1991 cholera outbreak referred to above, resulted in a potential loss in revenue of US\$770 million due to import restrictions

on food. Furthermore, tourism would also be affected as visitors shunned coming to a country due to fear of infection.

However, there is no concrete information on the impact caused by the past cholera outbreaks in Zimbabwe. More so, the coping strategies of the communities are not properly documented.

♦ **Water and sanitation as a community concern**

Water and sanitation should be treated as a community concern. A dichotomous approach usually does not yield the intended outcomes. Although other individuals or families may be conscious of the need to maintain good sanitation and hygienic conditions by paying for such services like a communal toilet or use facilities of neighbours, other individual or families may continue to defecate in an open space thereby compromising hygiene of the environs. Saywell *et al.* (1998: 30) noted that the benefits of paying for such services would be minimal and possibly influence the health conscious family to also use an open space. As a result, the impact of investing in water and sanitation may be very little if the community as a whole does not reciprocate the good practice.

2.14 Factors contributing to cholera in Zimbabwe during 2008/9 period

Literature generated during the period of the cholera outbreak in Zimbabwe revealed some of the factors that contributed to the cholera outbreak in 2008/9. However, what is conspicuous in the literature is the lack of consensus between the government's position and that of non state actors on the real cause of the epidemic. The government of Zimbabwe was blaming the crisis in the country that included lack of water purification tablets and subsequent lack of clean water for weeks on sanctions (BBC News, 4 December 2008). MSF (2009: 1) attributed the cholera outbreak to political violence, internal displacement of people and lack of strong and coordinated response to the crisis amongst others.

Although the epidemic was finally controlled in mid 2010, there was a high possibility of another outbreak before year end because the root cause of the problem had not been addressed. This was confirmed by WHO (2009: 4), when it warned that the underlying causes of cholera in Zimbabwe remained unattended to. The report warned of an impending cholera outbreak at the onset of the next rainy season. These fears came to fruition when new cases of cholera were reported, although they were much fewer compared to the preceding ones. However, that cholera phase is not covered by this research. The country had experienced prolonged periods of under investment in the sanitation sector leading to dilapidated infrastructure to the point of total failure.

On the other hand, countries are also known for not accepting failure in reasonable time to enable external help before it is too late. Zimbabwe is one such country that has this problem. However, Zimbabwe is not alone regarding this cancerous disease as noted by Kakar (2008: 18), by attributing this delay to poor surveillance and fear of international stigmatization including sanctions. The sanctions usually come as trade embargos by those countries in fear that the same disease may be transmitted through exported produces. At times, countries under-report official numbers of infected people as a way of showing that everything is under control. However, not much would have been done.

It could thus be concluded that a number of direct and indirect factors were at play, all contributing to the cholera outbreak. To demonstrate this point, the Pressure and Release (PAR) model (Figure 6) illustrates how these factors interact with each other within the realm of the epidemic. This model recognises the existence of the interaction of two opposing forces: those processes generating vulnerability and the natural hazard event (Wisner *et al.*, 2004: 50). It considers people's vulnerability as rooted in social processes and underlying causes which may not directly be linked to the disaster. It is also known as the Crunch Model influenced by what is called push factors, namely root causes and dynamic pressure that are caused by structural issues that impact on policies, practices and decision-making².

² www.ecbproject.org/pool/leaving-disasters-behind-chapter-2-key-concepts

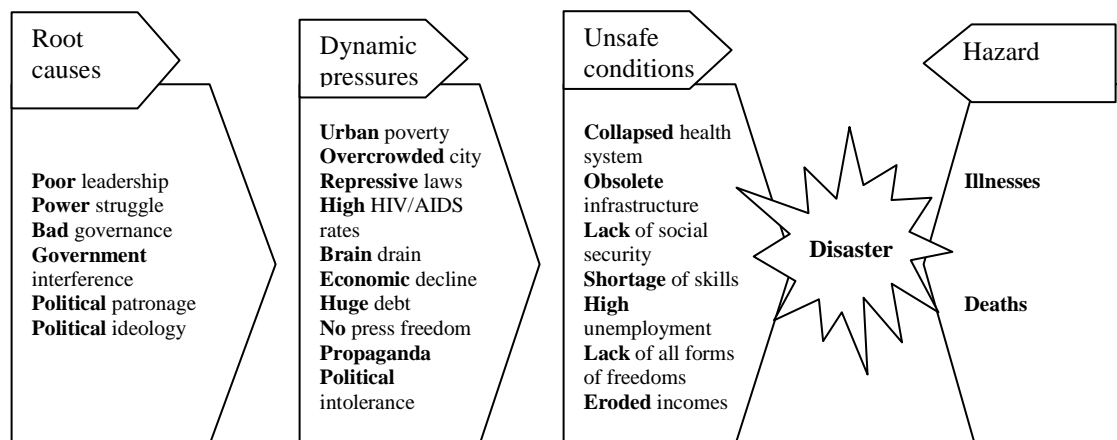


Figure 6: Pressure and Release Model for cholera outbreak in Budiriro, Harare.
Source: Adapted from Wisner *et al.* (2004, 51)

Figure 6 shows that cholera in Zimbabwe was linked to leadership problems, poor governance and political ideology as the root causes. These deficiencies in turn resulted in dynamic pressures such as increased poverty, bad laws, economic decay and a huge national debt. Ultimately, unsafe conditions emerge in the form of collapse of health systems, dilapidation of infrastructure, erosion of social security, unemployment and human rights violations. That is why there were unprecedented high cases of cholera that left more than 4 500 people dead. There was no political will and commitment to address the problem and also the government's capacity was limited due to the complexity of the crisis at the time.

2.15 Coping strategies

According to Bankoff *et al.* (2007: 32) coping strategies, which are also referred to as coping practices include specialised knowledge of skilled individuals, social knowledge held by communities, security systems, indigenous technical knowledge, local resources and capacities. Wisner *et al.* (2004: 113) defined coping as the way people act within given limits of resources and range of expectations to achieve certain ends. This definition shows that there is no community that does not have coping strategies or practices. Communities or even individuals develop coping strategies after having learnt

from previous problems. Therefore coping strategies are not static and they develop over time to survive when adverse conditions come again. Even organizations develop their coping strategies by drawing lessons from past experiences.

There is, however, need to realise that some of the coping mechanisms may be negative and antisocial. One such negative coping strategy is resorting to open defecation by Zimbabwean communities when they have lack of water in the household. By mid 2010, Zimbabwe was rated as having the worst case of open defecation by a World Bank expert, joining countries like DRC and Liberia (NewZimSituation, 2010). However, this strategy has several undesirable social effects (WHO, 1997: 780), like exposure to dangers at night (e.g. snakes in the bush), bush discomfort, bad smell, lack of privacy, lack of prestige and dehumanization. It was also found that women would usually wait for darkness in order to relieve themselves in the open spaces, but the effect on the urinary track of holding waste for too long is not known.

Suffice to highlight that coping strategies help communities to build resilience since they would have gained relevant experience to deal with similar disasters should they recur. According to Wisner *et al.* (2004: 115) disasters have a tendency of precedents especially in social environments, and cholera is one such example. In Bangladesh communities adopted the routine of filtering water using a folded cotton sari cloth to reduce cholera incidence in the households and even in the neighbourhood³. This practice became very popular with communities because it was simple, cheap and user friendly. WHO (2004: 56) emphasised the need to adhere to certain guidelines such as quarantining patients, supervising burials, disinfecting corpses and wearing of protective clothing.

2.16 Funding

Although funding for humanitarian action in Zimbabwe was generally lower than expected, donors managed to raise reasonable amounts to respond to the cholera outbreak. On 22 December 2008, UNICEF reported the arrival of critical emergency

³ <http://esciencenews.com/articles/2010/05/19/sari.cloth.a.simple.sustainable.protector.cholera>

supplies of 140 metric tonne of intravenous fluids, drip equipment, essential drugs, midwifery and obstetric kits. This was part of the US\$15⁴ million support from the Department for International Development (DFID) and the Dutch government. By that time more than 1 100 people had died and 24 000 cases reported.

According to WHO (29 December 2008: 2) by end of December 2008, the Chinese government had donated \$500 000 to fight cholera after Tanzania had donated \$60 000. USAID had made a pledge of \$6.2 million. These amounts were already above the US\$6 million WHO had planned to raise earlier in the month aimed at supporting the under resourced and under staffed health system (*Environmental News Services*, 10 December 2008). Nevertheless, challenges continued to be experienced as cholera cases continued to increase, though at a reduced rate. Some of these challenges included poor communication systems especially in rural areas, electricity cuts, shortages of cholera response materials (medical and non medical) and low staff morale because government was failing to pay them a salary.

Resource mobilization and fundraising was continued and by mid February 2009, more resources had been secured. WHO (2009: 2) reported that USAID, supported by the Office of USA Foreign Disaster Assistance (OFDA), had contributed \$950 000; Department for International Development (DFID) provided \$658 000 in addition to \$734 000 it had donated earlier on. The African Development Bank had given \$1 million and Central Emergency Respond Funds/UN donated \$2 051 798. Yet cholera continued to wreak havoc on the people of Zimbabwe. WHO (2009:3), in its health cluster weekly bulletin No. 8, reported that at least \$11 483 040 had been reported as donor contributions to the cholera epidemic. Experts estimated that at least \$30 million was used to fight cholera as from August 2008 to July 2009 both directly and indirectly. Unfortunately, this huge expenditure did not address the root cause of the problem, which was likely to continue emerging intermittently, impacting negatively on the livelihoods of the Zimbabwean people.

⁴ The US\$ is now the legal and official currency in Zimbabwe, since February 2009.

2.17 Lobbying and advocacy

At the time of the cholera epidemic in the country, the crisis bedevilling the citizens had become so complex that it needed multifaceted approaches that recognize the need for inclusivity and building up of critical mass for persuading government to act. Advocacy and lobbying actions were therefore necessary to try and influence decision-making by politicians and key people in government. Wisner *et al.* (2004: 115) recognize the importance of developing public policies by making reference to coping strategies so that the policies are relevant to the communities they are supposed to serve. One way of doing this was for civil society organizations and residents to forge alliances so that their voices could be heard. The inaction on the part of government was worrisome, prompting a number of organizations that had a known constituency to send petitions for speed resolution of the cholera problem.

In this respect, on 24 October 2008, the ZADHR issued a public statement that the cholera outbreak had spread to many areas without any solution in sight. They accused the government for underestimating the level and impact of the collapsed infrastructure in the health sector. Their worry was that cholera, as a disease that could easily be prevented and cured by then, should have successfully been contained by government restoring water and sanitation systems. The continuation of the disease, especially in urban areas was thus a sign of absence of effective governance at local authority level.

The same organisation made yet another public statement on 19 September 2008, calling for urgent action to be taken in order to address water shortages and breakdown in sanitation. This time around, they wanted government and local authorities to restore water supply services so that outbreaks of diarrhoea, dysentery and cholera were stopped. It was their opinion that the problem was a manifestation of structural problems within the system of the public works. They called the Ministry of Health and Child Welfare to improve coordination with other stakeholders in order for citizens to enjoy their right to the highest attainable wellbeing.

On the same note, a group of 35 organizations under the leadership of the Community Working Group on Health (CWGH) made an appeal to WHO for the restoration of normalcy in the health sector. Their appeal was dispatched in December 2008, with acknowledgement that the obtaining health crisis emanated from a wider economic collapse and not necessarily from the health sector alone (Schuftan, 2008).

The above are some of the visible lobbying and advocacy efforts by civil society organizations. It is possible that when government finally formally acknowledged the existence of the cholera problem in December 2008, it was because of some of these appeals and statements, demonstrating the importance of working in solidarity whenever there is a problem.

2.18 Conclusion

The review of literature chronicled some of the major cholera outbreaks that occurred in other parts of the world. Thereafter a regional perspective was presented before focusing specifically on Zimbabwe. The impact of cholera was also discussed including the various coping strategies that were used during the cholera epidemics. The application of the Pressure and Release model was done showing the interrelationships amongst the root causes, dynamic pressures and unsafe conditions of the hazard. Last but not least, the chapter concluded by showing that there were lobbying efforts by other agencies to force government to show commitment, and act in order to end the cholera epidemic.

CHAPTER 3

IMPACT OF CHOLERA ON BUDIRO COMMUNITY

3.1 Introduction

This chapter will look at the impact of cholera on people in Budiro covering the social impact, psychological, economic and environmental aspects. The social impact includes gender and age dimensions of cholera, death, illness, stigma, hygiene practices and water and sanitation services of the affected families. Economic and environmental impact will also be assessed. In this chapter will be discussed the participants' general responses preceding the impact of the cholera epidemic in Budiro suburb.

The impact discussed in this chapter were derived from data obtained from the participants whose response matrix is indicated in Table 2 and Table 3

TABLE 2: INTERVIEW RESPONSE MATRIX

Household category	Number of respondents	% of target
Targeted households	120	100
Reached households	108	90
Missed households	12	10

Table 2 indicates the results of the number of households that were reached and interviewed during the field survey. The survey was done using questionnaires that were administered to 108 households (families). Of the 108 respondents who represented their households, 72.2% were female whilst 27.8% were male. Table 3 has details of the three Focus Group Discussions (FGDs) that were convened in Budiro during the survey.

TABLE 3: RESPONSE SUMMARY FROM FOCUS GROUP DISCUSSIONS (FGDS)

Entity	Participants per group		Time committed	Comment on response and participation
	Male	Female	Hours	
Group 1	5	25	3	Highly emotional, cooperative
Group 2	6	26	3	High degree of seriousness, cooperative
Group 3	8	33	4	Very cooperative, serious
Total by Gender	19	84	10	Female dominated discussion
Rating	4	1		Overall fruitful discussion
Grand total		103		Overall a well participated exercise
Scale: 1=Very good 2=Good 3=Neutral 4=Bad 5=Very bad				

Source: Survey, 2010

NB: The above figures were calculated **1hr** after the discussion commenced when the research felt that the group now stable with minimum people joining and going away. However, at some points the numbers of people exceeded the above records.

3.2 Social impact of cholera

a. Gender

The 2008 to 2009 cholera epidemic affected more women than men in Budiriro. Results from the field assessments showed that in the households that were visited, 59.3% of the people who were infected by cholera were females as indicated in Table 4. However, overall cholera infected more males in the city of Harare based on reports compiled by the Cholera Control and Command Centre (C4). From a sample of 107 respondents, 15 people were reported to have died. Of the 15 deaths, 11 were females and four were males. The above statistics indicate that the cholera epidemic was more devastating to females than males.

However, there is no consensus from literature that shows that cholera attacks people along gender lines. Felsenfeld (1966: 171) reported more women infected during the cholera outbreak that occurred during the Second World War. Contrary to the above, Christie (1987: 200) reported more men infected than women in the 1970 cholera outbreak in Israel. Having 59.3% females infected in Budiriro is not anything outside the norm as literature confirmed variation in patterns of infection between males and females.

TABLE 4: GENDER OF THE INFECTED PERSONS

Gender	Frequency	Per cent
Male	44	40.7
Female	64	59.3
Total	108	100.0

b. Fetching water

Gender roles were also assessed. These are socially prescribed by society and central to them are “reproductive gender roles” which are often performed by women. In 51.8% of the families interviewed in Budiriro, females were solely responsible for fetching water, followed by 37.0% of the families where the responsibility of fetching water was shared equally between females and males.

c. Caring for the sick

Compared to men women mostly accompanied patients to clinics. At least 44.9% of the patients were accompanied by a female relative to the clinic, 29% of the patients were accompanied by both male and female relatives whilst 23.4% of the patients were accompanied by male relatives. However, 2.8% of the patients went to the clinic on their own. It is also crucial to analyze situations where: a male patient was accompanied by a male helper and vice versa; male accompanying male (9.7%; male accompanying female (13.7%); female accompanying female (24.6%) and female accompanying male 20.3%). In addition to accompanying the sick, females also played a bigger role in caring for the sick whilst at home. The respondents indicated that 68% of females took care of patients at home. The multiplicity of these roles performed by females increased their risk to the cholera disease. This indicates that females were largely responsible for taking patients to the health centres as indicated in Figure 7.

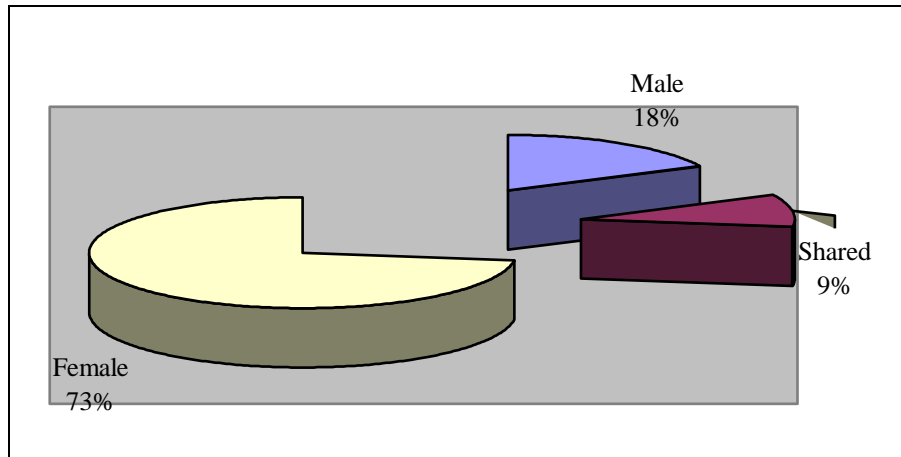


Figure 7: Responsibilities of caring for patients by gender in Budiriro

In addition to the role women played in Figure 7 there were other roles consistent with their generic gender expected of them. Lack of electricity in the suburb for boiling water or cooking in general increased the workload on women since they had to fetch firewood. It was established that in 58.8% of the households, women were responsible for fetching firewood from the forests. Even where firewood was bought, in the majority of cases (66.7%), women were responsible for its purchase. It was found that 76.8% of the families bought firewood from within Budiriro.

Of interest to note was that in certain families both males and females shared the responsibility of fetching firewood. The dual responsibility existed in 23% of the families as there was no gender division of labour with respect to collection of firewood from the forests. Access to firewood from the forest was influenced largely by distance amongst others. Regarding distance to the forest where firewood was collected, 32.3% of the families travelled less than 500m, 9.7% travelled a distance of between one to two kilometres, 12.9% travelled a distance of three to four kilometres and 45.2% travelled a distance of four kilometres and more as shown in Figure 8.

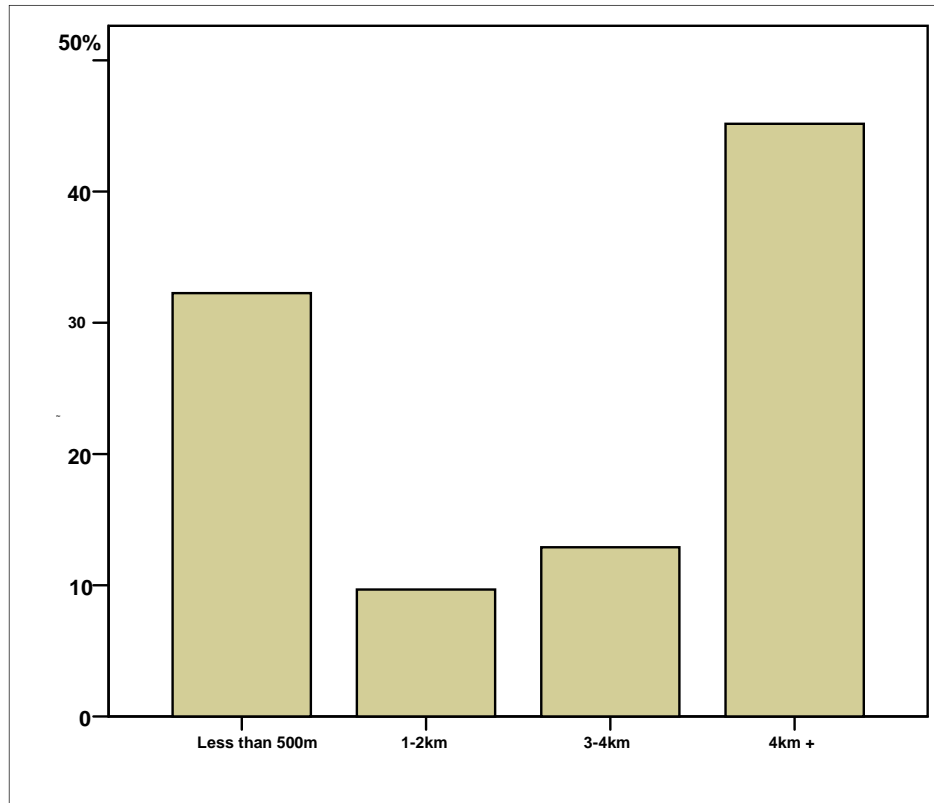


Figure 8: Distances travelled by Budiriro community to collect firewood from forest

Women were largely responsible for performing other cultural and gender roles like fetching water and firewood, caring for the sick and accompanying patients to health centres. They carried an extra burden which essentially increased their vulnerability to cholera. For instance, by playing these roles women ended up even contracting the disease because of their proximity to the patient compared to their male counterparts. In addition, women ended up diverting their time increasing the burden on them as they perform these extra responsibilities. Gender equality guidelines developed by CIDA (2003: 6), also acknowledged the general increase in women’s workload during disaster situations.

d. Cholera and age

The 2008-2009 cholera epidemic in Budiriro heavily impacted adults. An analysis of the people who were infected with the cholera disease and who reported for treatment at the Budiriro Cholera Treatment Centre showed that the majority of them were adults in the

16-45 age group, which constituted 67.6% of the infected people. Children under the age of sixteen years and the elderly above the age of 66 years constituted 13.9% and 3.7% respectively. Details of these findings are shown in Figure 9.

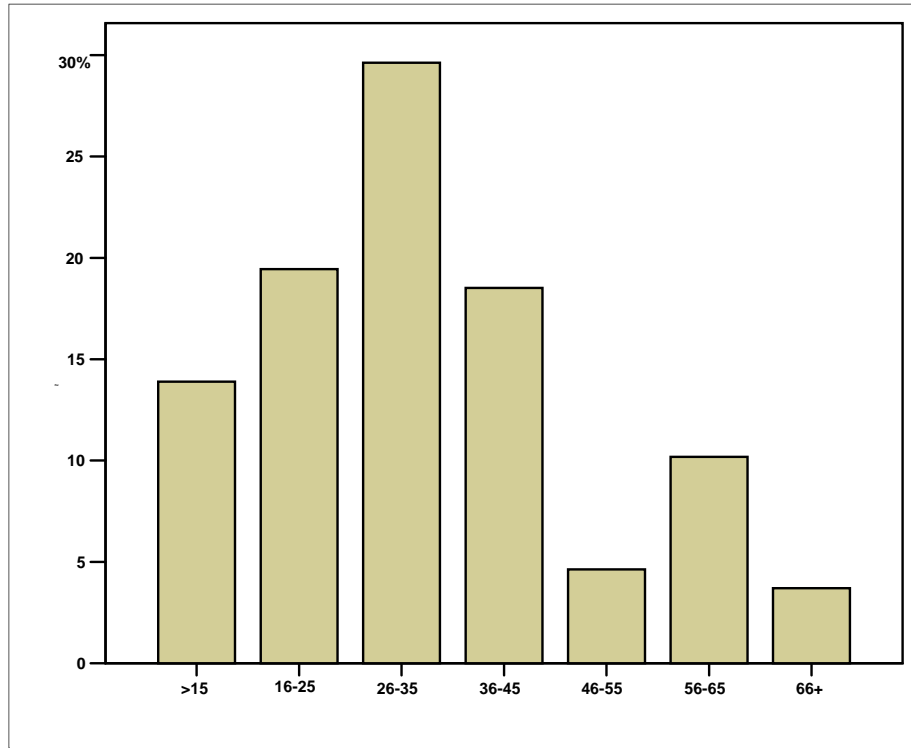


Figure 9: Age groups of the infected people in Budiriro

The results from Budiriro are consistent with research findings from other studies. Barua in Christie (1987: 200) found that when a cholera outbreak occurred in Italy in 1973, more adults were infected. The average age of patients was 52 years on the East Coast and 53 years on the West, and very few children were attacked. Just as was found in Budiriro, a similar trend was established in Africa during the 1970 to 1971 outbreak when more adults were attacked. In a similar vein, in Israel in 1970, more adults in the 15-44 age group were infected. Suarez and Bradford (1993: 12) assessed the age groups of the people attacked by cholera in Peru in 1991 and 1992 and found out that the majority of them (61.2%) were in the 15 - 54 age group. At least 12.6% of them were children under fourteen years. From the above figures it can be derived that cholera in Budiriro affected the most productive age groups implying that the impact was very severe, and would

have long-term effects. The investigation why adults were more infected in Budiriro could not be discerned from the available data as such. Further investigation is recommended to establish the reasons.

e. Cholera and religion

Discussions in Budiriro indicated that cholera heavily impacted members of religious groups that did not subscribe to clinical treatment even when there was an outbreak of infectious diseases like cholera. From the FGDs, the community members were unanimous in that those churches which did not allow their followers to go to clinics should have been prosecuted because they were not only a danger to their members, but also to others in the community. Although aqua tablets were widely distributed in Budiriro to treat water, there was concern that the apostolic sect members were not using them because of their position with regards to tablets in general. Members of the apostolic sector are not allowed to take any tablets.

This was also confirmed in an evaluation that was done by the Institute of Water and Sanitation focusing on responses that were used to fight the 2008-2009 cholera epidemics in Zimbabwe (Neseni *et al.*, 2009: 15). A case of three deaths in one family belonging to the apostolic sect was cited as an example during the FGDs. Apart from high death rates, these religious members had a negative impact by spreading cholera to others.

f. Illness and death

There was gross illness over the pandemic period which infected 9 116 people and left 206 dead to give a CFR of 2.3% in Budiriro alone by the end of the epidemic (WHO, 24 July 2009). The impact of the epidemic was felt heavily by the Budiriro residents where the CFR was much higher than the national of 1.7%. This compromised the health of the families, even by the time the research was done some of the respondents were still complaining of stomach pains.

The research also looked at the medical history of the persons attacked by cholera prior to the outbreak. The aim was to determine whether ill health increased people's

vulnerability to cholera. Of the respondents, 17.6% of those who were attacked by cholera had a history of ill health, and 33.3% of them did not recover at all. The fatality rate from those who did not have a poor health history was 10.1%, a figure very low compared to ones with a history of ill health. Cholera was therefore a deadly opportunistic infection for those who had already been infected by some other disease.

g. Orphans

The epidemic left many children orphaned and vulnerable. The FGDs acknowledged the increased burden on the surviving family members who were already failing to cope with AIDS orphans. By 2009, Zimbabwe was estimated to have 989 009 AIDS orphans (GoZ, 2009: 5). Some of the respondents during FGDs indicated that most of the orphans were no longer going to school because of hardships. Out of a group of 32 (Group 1) participants, nine families confirmed having orphans due to the cholera pandemic. In Group 2 that had 32 participants, one parent said that she was left with four cholera orphans. The social problems for both the orphans and families caused by the epidemic were apparent.

h. Disposal of corpses of infected people

The respondents complained about deplorable and poor arrangement with regards to disposal of dead bodies. Surviving relatives were not allowed to perform a body viewing act in order to verify the identity of the deceased person. The respondents did not rule out the possibility of them having buried wrong bodies due to this restriction. Some even suspected that mass burying was practised because of shortage of plastics at the time whilst others indicated no confidence in the system, which they suspected had collapsed to the extent of lacking capacity to verify “death”. The system was fraught with innuendos of declaring live people dead.

Such cavalier treatment of the sick and dead offended the Budiriro people. The rage of the Budiriro community is not anything outside the norm. WHO guidelines provide strict burial procedures that are usually in conflict with most cultures and religions. Briefly, the guidelines require the corpse to be disinfected, wrapped in plastic and the burial of the

body as close as possible to where the person had died and within 24 hours (WHO, November 2009: 62). It is not surprising that the Budiro community were left offended when they were not allowed to view bodies of their dead relatives

i. Treatment of pregnant people

During FGDs, Budiro communities believed that some of their relatives had their pregnancies terminated before being admitted for treatment. The group indicated that this had a devastating health and physical impact on both the family and the patient. However, this was disputed by the health facilities who indicated that precautions were taken to ensure that pregnant women were treated for cholera and then continued with their antenatal therapy. Whether this was in keeping with clinical treatment procedures or not, undoubtedly had far-reaching effects on the psychological health of the families affected.

j. Social classes

During the Focus Group Discussions in Budiro, participants said that the mode of transport used to carry a patient to a health facility indicated the social standing of the family of the patient. This issue was raised because of the different modes of transport patients used to go for cholera treatment. From the respondents, the study found out that a total of 32.4% of the patients walked on their own to the Cholera Treatment Centre (CTC), 36.4% used private vehicles and 28% used wheelbarrows and push carts as indicated in Figure 10.

Families resorted to using push carts, which are essentially used for transporting goods and not humans because they could not afford to hire a vehicle. Ordinarily, seriously ill patients use ambulances to go to health facilities, yet in Budiro some people could not access such decent transportation, which is a basic service that should normally be available. The UN-Habitat (2007: 3) concluded that the lack of essential services, including basic transportation had a strong negative impact on the lives of the urban poor.

Similarly Oxley (2005) alluded to the view that the poorest people were usually most at risk from impact of disasters. This assessment presupposes that those who could afford private vehicles were better off families whilst those who used wheelbarrows and push carts were from poorer families. It can therefore be ascertained that cholera impacted more on the poor families.

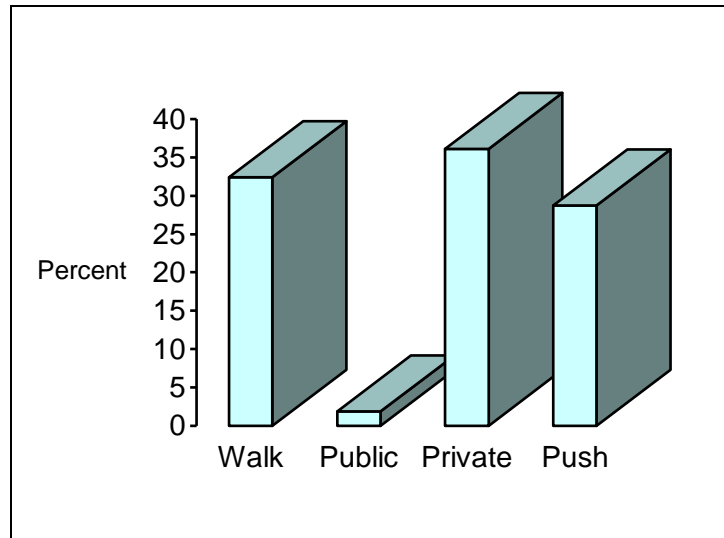


Figure 10: Mode of transport used to go to health centre

3.3 Economic impact

Considering that cholera is associated with low income earners (Felsenfeld, 1966: 176), it would be important to understand how people attacked by cholera managed to finance their basic needs, especially medical bills associated with the cholera epidemic during 2008/9 period. An inventory of their major sources of income was done and other income sources were investigated as outlined below.

a. Source of income

Cholera heavily impacted on people's income depending on the nature of the business. Informal businesses including cross border trading were most affected because they either completely closed or suspended their operations. This was so because sole traders like cross border ones had to suspend their trips, and vendors had to stop trading once they became sick. This impacted negatively on their income since they depended more on

their personal daily participation in the business. Those in formal employment had an option of applying for official leave without affecting their income. In circumstances where death occurred, income was permanently terminated irrespective of whether one was informally or formally employed. Out of a total of 15 deaths recorded (n = 108), seven were formally employed and six were informally employed as indicated in Table 5.

TABLE 5: IMPACT ON SOURCES OF INCOME

		How the person was affected		Total
		infected	death	
Primary source of income	Formal	42	7	49
	Small Business	9	0	9
	Remittances	8	1	9
	Informal	22	5	27
	Begging	1	1	2
	Cross border trade	6	1	7
	Other	3	0	3
Total		91	15	106

Source: Field survey, September 2010.

b. Loss of financial capital

When the cholera started in August 2008, families lost financial capital due to unexpected and unbudgeted expenditures. From the FGDs, it was reported that some families ended up buying water, which had never been part of their shopping list and that stretched their already dwindling financial resources. They spent about ZW\$50billion per two litre bottle and US\$2 to US\$3 per 20l container. At that time other suppliers were already charging goods and services in hard currency although it was illegal. Families had to meet some of the costs associated with being ill, and they included cost of medical consultation fees, medicines and transportation. For instance, adults were paying a consultation fee of \$10 at clinics and \$20 to see a private doctor.

They reported that there was congestion at clinics since health personnel at government institutions were on an industrial strike throughout the country. CTCs were only

established later with the assistance of international humanitarian agencies like United Nations Children's Fund (UNICEF). Costs were also incurred by hiring of transport in the form of private cars and push carts to ferry sick relatives to the health centres. The extent of the extra expenditure was significant. Of the respondents, 61.3% indicated that they spent a significant portion of their hard-earned income directly on cholera treatment. Only 13.2% indicated that they received totally free treatment. Although “free treatment” was offered at government clinics, these institutions did not have drugs in stock; therefore they issued prescriptions for patients to purchase medication from private pharmacies.

c. Liquidation of assets

During the cholera outbreak in 2008, Budiriro community experienced loss of household property because of the need to generate money to use in buying supplies for the infected person. Most families reported that they had to sell household goods in order to raise the required financial resources. During FGDs, they reported that they sold television sets, radios, room dividers, DVDs, wardrobes, cell phone handsets, sewing machines and bicycles to meet medical expenses and purchase coffins. Some of them reported that they lost blankets that had to be burnt after having been spoiled by patients either through vomiting or diarrhoea. Liquidation of assets is a common phenomenon when people are in a crisis similar to the cholera outbreak in Zimbabwe. Wright *et al.* (1999: 31) concur with happenings in Budiriro during the cholera outbreaks by acknowledging the possibility of asset disposal by vulnerable people during distress.

d. Debts

A total of 45.8% of the respondents borrowed money for daily cash needs and treatment. This money was largely borrowed from relatives (63.6%) and friends (27.3%). Therefore the financial impact of cholera was significant considering that some families were left indebted. FGDs confirmed the above, saying that the epidemic left them in great debt because they had to borrow money to meet costs related to cholera. Borrowing left them heavily indebted to relatives, friends, social clubs and churches. Most of them indicated

that they were failing to pay back the debts. Money was needed for buying drips to supplement those supplied at the clinics. They also needed money to finance the funerals.

e. Unproductive waste of time

Time was “wasted” in the process of responding to the cholera epidemic. During FGDs, the respondents in all the three groups indicated that they spent a lot of time collecting water. Water availability and access with respect to productive use of time was assessed for Budiriro residents during the cholera period. The results were benchmarked against the Sphere minimum standards. Only 11.2% of the respondents spent less than three minutes to fill in a 20 l container and 63.6% of them spent between four to 15 minutes. Thus, the majority of the people were taking longer than the recommended minimum period of three minutes to fill a 20 l container (Sphere Project, 2004: 63).

The respondents also indicated that they had to wait in water queues for their turn for many hours. This was so because 19.4% of the respondents indicated that they waited for almost two hours in the queue whilst 36.9% could not remember how long they waited because the waiting period was too long as indicated in Figure 11. According to the Sphere Project (2004, 63), the waiting time in water queues should not be longer than 15 minutes.

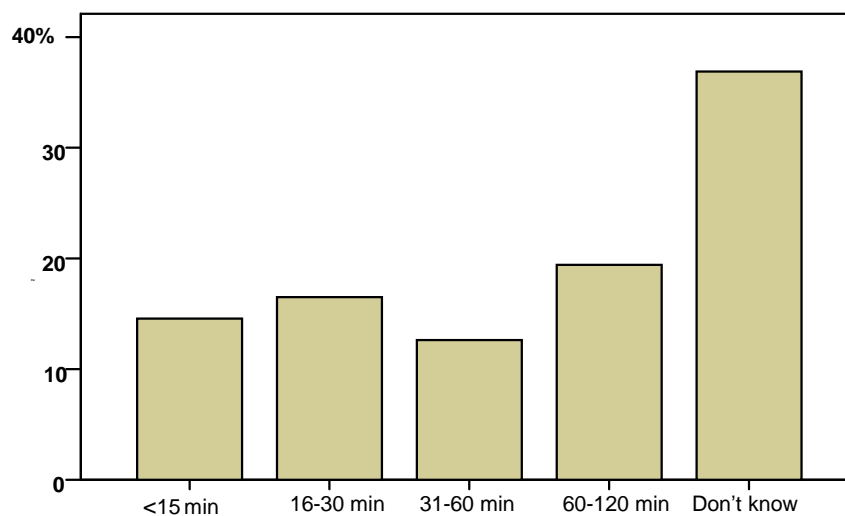


Figure 11: Time spent queuing for water at various sources

Distances to some of the water sources were very long. The study found out that 30% of the respondents fetched their water from sources located between 500m to 2 km from their homes. Another 8% of the respondents (n = 108), confirmed walking more than 2 km to fetch water, a distance too long compared to the acceptable Sphere minimum standard of 500m (Sphere Project, 2004: 63). For instance, some of the respondents during the FGDs said they ended up collecting drinking water from High Field suburb, which is far from Budiriro.

Time needed to fill a standard 20l container, waiting in water queues and distances travelled to the water sources all impacted negatively on effective utilization of time by Budiriro community. They therefore lost valuable time which they could have used for other livelihoods opportunities.

On the other hand, the need for eating food whilst hot and boiling water during the cholera outbreak period compelled people to seek alternative sources of fuel in the absence of electricity. Budiriro residents had to fetch firewood from the forests or buy from vendors within the suburb. This was so because electricity was not always available from the national grid due to load sharing. Firewood became the main source of fuel or energy for most families as indicated by 89.7% of the respondents.

None of the respondents mentioned electricity as a source of fuel for cooking and boiling water in Budiriro during the cholera epidemic due to its unavailability during odd hours at night. As a result, 14.9% of the respondents fetched firewood from the forests, some of which were far. Forty-five per cent of the respondents fetched firewood from forests located more than 4 km from their houses as shown in Figure 12. Fetching firewood from these forests was illegal, exposing people to the risk of being arrested by the police. Above all, this task was time consuming and laborious since residents walked long distances.

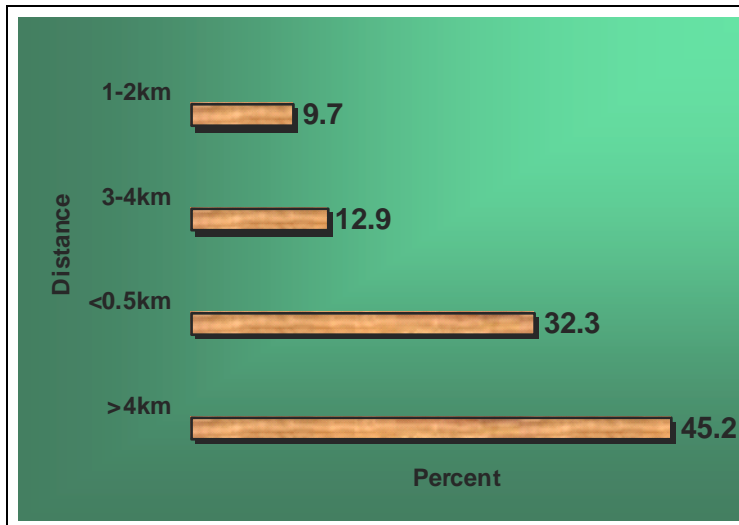


Figure 12: Distances travelled to fetch firewood

f. Collapse of livelihood activities

The livelihoods of the people of Budiro were dependent on vending, and with the advent of cholera there was a suspension of livelihood activities. Feedback from FGDs showed that customers were no longer interested in buying from the open markets for fear of contracting cholera, yet the majority of households were surviving on vending. On the other hand, some vendors suspended their activities at the market in order to attend to ill people who needed to be taken care of. Some used their small savings from the market to meet medical bills and funeral costs resulting in the closure of the business due to bankruptcy. It was reported that some people could not attend to their small businesses because they were either sick or attending to sick relatives. These new demands diverted people from their daily routines thereby negatively impacting on their livelihoods.

g. Loss of vending stock

There was rampant confiscation of vending stocks by the regulatory authority, especially fruits and vegetables that were being sold by the residents at undesignated locations. At the time, it was reported by the respondents at the FGDs that vendors were selling meat, fish and milk in open spaces since there were no more formal jobs. People therefore lost their wares and income opportunities when the Harare City Council was cleaning up the city with the aim of reducing the spreading of cholera. Destruction was not only limited

to stocks but to capital assets like vending tables which were either destroyed and/or taken away as running battles were fought between the municipal police and the local vendors.

Destruction of fruits and vegetables by regulatory authorities was not uncommon during times of cholera outbreaks, but the rationale behind it has been challenged, especially when fruits and vegetables are in transit from source to the market. For instance, Christie (1987: 199) reports that the cholera bacteria do not survive for long in fruits and vegetables. Therefore there may be no need for local authorities to spend time and resources destroying fruits and vegetable if they are not for immediate consumption. Some respondents reported that they were no longer able to restart their vending activities long after the cholera had been contained. However, the destruction of animal products and fish was justified considering that bacteria can survive in them for up to one month. Moreover, fish was known for spreading deadly cholera in a number of developing countries as was the case in Togo (Christie, 1987: 198).

3.4 Environmental impact – pollution

The advent of the cholera epidemic increased the extent of open defecation, thus increasing the extent of the spread due to faecal contamination. At least 67.3% of respondents indicated that they ended up using the nearest open field whilst 12.5% used the bush to relieve themselves since their toilets were no longer working. With 67% using open fields, faeces became the most common land pollutant. Subsequently, land pollution culminated into air pollution as obnoxious odours were emitted by the faeces-laden land. The resultant impact was the pollution and contamination of water due to run off caused by rains.

3.5 Psychological impact

The cholera epidemic left Budiriro residents psychologically devastated. The respondents revealed that even a year after the cholera pandemic they were still being haunted by fear, which was generated by the traumatic events they experienced. They said that the post traumatic effect was still with them, thereby compromising their well being.

The residents also indicated that they were stigmatized because of cholera. The following words from a respondent vividly illustrated the impact cholera had on them: *“Today people associate us with bad memories of death and cholera. Whenever people are looking for houses for lodging, they consider Budiro as the last resort. This hurts us and has affected our dignity. Visitors do not have confidence in eating in our houses. The value of our houses has gone down; we are now charging low rentals as compared to other areas. Today everyone says, **kuBudiro kwe cholera uk⁵!**”*

3.6 Factors that influenced cholera impact

A number of factors contributed to the spreading of the cholera disease and the impact thereof. Those were the factors without which the cholera outbreak would not have had the intensity it exhibited in Budiro at the time it happened. They include, but are not limited to the following:

a. Sewerage spillage

There was a high sewerage spillage in Budiro suburb due to malfunctioning of water and sanitation infrastructure. The study indicated that 36.8% of the families experienced a high rate of sewerage spillage, followed by 25.5% that experienced a low spillage rate, and 24.5% that had to live with a very high sewerage spillage rate. Overall, 94.3% of the respondents experienced sewerage blockages in one way or another as indicated in Figure 3.7.

Sewerage is known for being a host for the cholera-causing bacteria. Therefore sewerage spillage increased the risk of cholera infection in Budiro. Human faeces are the major source of bacteria, especially *E.coli*, hence the need for proper disposal so that they do not facilitate the spreading of the disease. A good working toilet or latrine is a must for every household so that disease transmission is minimised.

⁵ Literally meaning Budiro is a suburb known for cholera

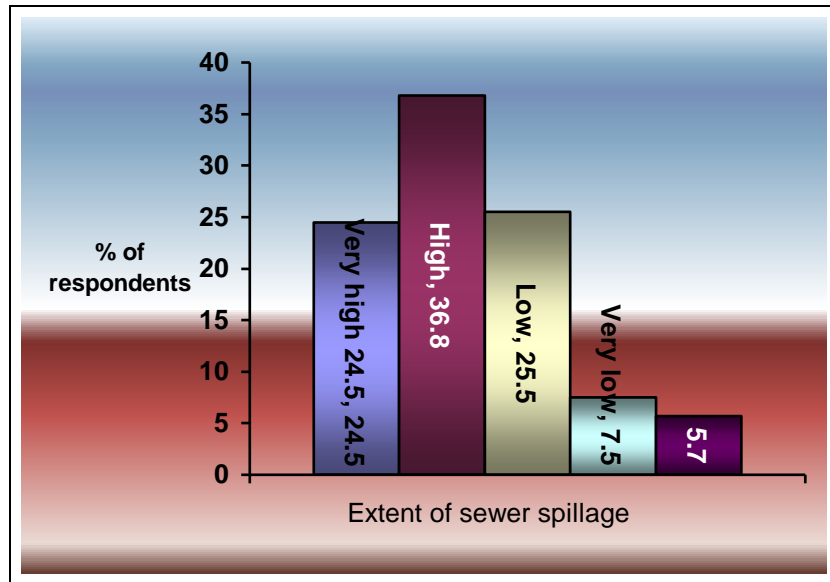


Figure 13: Extent of sewerage spillage

b. Lack of safe water for domestic use

When the respondents were asked how often water was available from taps in their houses, 44.4% of them indicated that water was rarely available. Another 31.5% indicated that water was not available at all times as shown in Table 6. Since only 8.3% of the houses had tap water, the majority of the families had to rely on other sources. Most respondents (66.7%) ended up fetching water from unprotected wells, and 22.2% were getting their water from boreholes as indicated in Figure 3.8. This scenario created an environment conducive to a cholera outbreak.

At least 61.7% of respondents reported that they had no water in their houses for up to six months. There were extreme cases (5.6%) where water had not been available for more than six months. That was an indication of a serious water supply problem in Budiriro, which forced the entire suburb to depend on unprotected water sources in the form of shallow and deep wells which were contaminated. This may explain why the cholera rates were high in the area compared to the whole of Harare and the country in general.

TABLE 6: AVAILABILITY OF TAP WATER IN THE HOUSES

Scale	Per cent
Always	3.7
At times	20.4
Rarely available	44.4
Not at all	31.5
Total	100.0

c. Water accessibility

The study found that 49% of the respondents had 24 hour access to water sources, followed by 34.6% who were able to access water from early morning to early evening hours. The remaining 15.4% were able to access water during daytime only. Further collating of these figures showed that the water that 66.7% of them were accessing was from unprotected sources as shown in Figure 14, meaning that they had no access to safe, clean water. That condition increased the chances of cholera spreading.

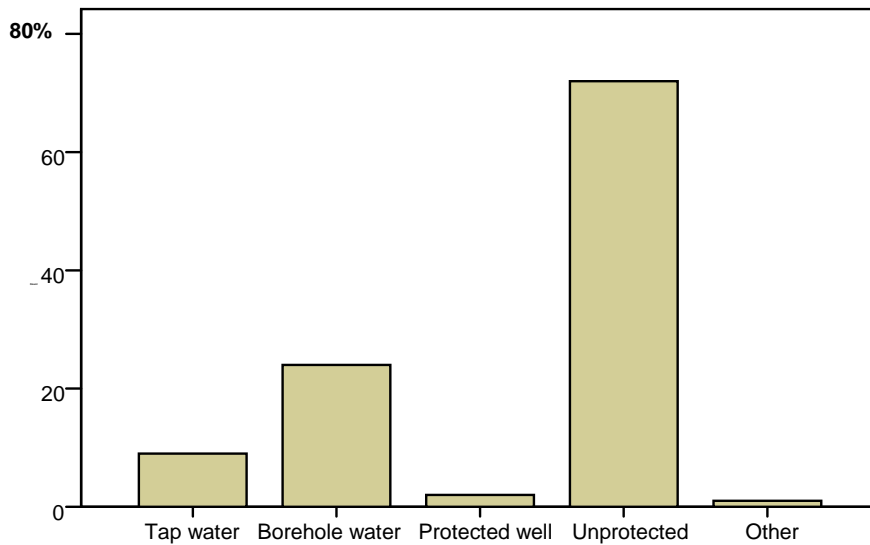


Figure 14: Sources of water in Budiriro during cholera outbreak

d. Water storage

When the aspect of adequacy of water storage containers was investigated, it was found out that 62% of the respondents indicated that they did not have adequate storage capacity. Therefore water storage was a problem for the Budiriro community as water was not available within their houses. Unavailability of adequate and appropriate water storage containers contributed to the spreading of cholera due to compromised personal hygiene practices.

e. Domestic water treatment

Only 40.7% of the respondents reported that they were always treating their water before consumption, whilst 24.1% indicated that they sometimes treated it. At least 32.4% of the families indicated that although they knew that water was not clean, they took a risk and used it without any treatment. This risk-taking behaviour in the use of untreated water exacerbated the cholera epidemic.

f. Drawing and ferrying of water from source

In Budiriro water was being drawn from the source using two main techniques, namely the bucket system (81.3%) and the hand pump (16.8%). The bucket was used mainly for drawing water from the unprotected and protected deep wells whilst the hand pump was used to draw water from boreholes. Ropes were usually tied to the bucket to draw water from a deep well and this contributed to water contamination as different hands got in contact with the rope. The unhygienic handling of water contributed to the spreading of cholera in Budiriro.

g. Timeliness of response

The study assessed the timeliness of the external support that was rendered to the Budiriro residents during the cholera epidemic. Residents generally viewed the support as having been done in good time as represented by 53.3% of the families, whilst the balance felt that it came rather late, when the situation was already out of control. When dealing with epidemic diseases like cholera, failure to reach out to 46.7% of the people is

equally fatal. Therefore in the case of Budiro, the late response by responsible authorities and humanitarian agencies aggravated the spread of cholera.

3.7 Conclusion

In this chapter the impact of the cholera epidemic was assessed and linked to the literature review that was done in Chapter 2. The impact assessed was socio-economically oriented because the study had a more qualitative design. The resultant effects of the impact increased the vulnerability of the Budiro community by negatively affecting their sources of income, livelihood opportunities and damaging the social fabric of the community. This weakened their resilience to future disasters of similar nature, as demonstrated by their failure to recuperate and recover one year after the disaster. It was also found out that other influencing factors contributed to the spreading of the disease, thereby aggravating the socio-economic and environmental impact on the community.

CHAPTER 4:

STRATEGIES TO COPE WITH IMPACT OF CHOLERA

4.1 Introduction

This chapter focused on the coping strategies that were used by the Budiro community to respond to the impact of the cholera epidemic. The impact was discussed in Chapter 3 and the coping strategies were grouped into four categories, namely social, psychological, economic and environmental. Some of the coping strategies were adopted by individuals whilst others were used by health service providers like humanitarian agencies contributing to the reduction of the risk of cholera infections.

4.2 Social coping strategies

a. Establishment of a Cholera Treatment Centre (CTC)

In order to cope with the cholera epidemic, the study revealed that the government reacted by inviting humanitarian agencies to assist in specialized areas after realizing that the epidemic was overwhelming. A key informant based at Budiro clinic informed the researcher that these international organizations helped in the setting up of the CTC, though it was late. That was in line with WHO guidelines of enhancing capacity of health institutions by setting a CTC within existing health facility (WHO, November 2009: 22). They also assisted with drugs, dip fluids, beds, polythene, blankets and personnel.

In terms of administrative arrangements, some patients were quarantined aimed at reducing the spreading of the cholera disease and admission wards were established. The wards were divided into male, female and children sections. There was a kitchen and a mortuary. Immediately after a patient had been admitted, categorization was done based on condition. Patients classified as mild cases were treated and discharged immediately on ORS, moderate cases were admitted and given intravenous fluids whilst severe cases were referred to Beatrice Infectious Disease hospital, which operated as the national

Cholera Treatment Centre. Similarly, Budiriro CTC also acted as a referral centre for other clinics in Harare.

In addition, the informant also informed the researcher that when Budiriro clinic was established as a Cholera Treatment Centre, all other health services were suspended. An arrangement was set up where the Environmental Health Technicians (EHT) visited communities to identify affected people and then directed them to the clinic for treatment. The number of patients was so large that the Budiriro CTC had to operate a 24 hour shift.

It also provided personnel for supervising burial of those who died of cholera. A review of records at the Budiriro CTC showed that organizations like UNICEF, Oxfam GB, WHO and ICRC played a gargantuan role one way or another in fighting the cholera epidemic. This increased the government's capacity and resilience to cope with the epidemic. The above coping strategies enabled the government and its health partners to attend to more patients and also reach out to communities within their localities for purposes of disseminating cholera health education.

b. Seeking treatment at health facilities

The participants during FGDs said that they managed the cholera epidemic by seeking treatment. This coping strategy was enhanced by the setting up of free CTCs in Budiriro by the government with support from its strategic partners. The MoH&CW encourages the use of homemade rehydration solution, which essentially is a sugar salt solution (WHO, 2009: 36). Severely dehydrated patients received intravenous drips to hasten their recovery. Reports of some patients consulting traditional healers and prophets were also cited during the FGDs. However, all these strategies contributed to the cholera responses by communities in Budiriro suburb.

c. Transporting patients to health facilities

In order to supplement the shortage of public transport, residents reported that they used wheelbarrows and push carts to transport patients to clinics. Some walked, but others used private transport. It should, however, be realized that some of the respondents lived

in proximity of the Cholera Treatment Centre (CTC) and were therefore practically able to walk there, depending on the severity of the illness. However, others complained of long distances to the CTC, which forced them to hire transport although fuel was not readily available at the time. Push carts and wheelbarrows became the most viable option under the circumstances which helped them cope with the cholera epidemic.

d. Distribution of non food items (NFIs)

The study also noted that there was extensive distribution of NFIs by humanitarian agencies in Budiriro. The respondents said they received assorted items like soap, buckets, aqua tables, cotton wool and disinfectants among others, from NGOs. A few participants complained about the selection criteria that left some out from benefiting, arguing that cholera affected every resident in Budiriro equally. Others queried the distribution methods which they said promoted corruption and unfairness. On some of the distribution days, recipients were said to have waited in queues for very long hours before getting their entitlements. During some of the days the issuing organizations failed to turn up. Notwithstanding the noted problems, the NFIs were meant to enhance personal hygiene, and subsequently improve the community's coping capacity to the impact of cholera.

e. Use of cleaning agents to wash hands

The respondents indicated that they used soap to wash their hands as and when it was available. At least 63% of the respondents indicated that they were always using soap for their daily routines and that the soap was part of the non food items (NFIs) that were distributed by humanitarian agencies in Budiriro. Nationally, 66% of people were reported to be using soap to wash hands in a report produced by Oxfam GB (Neseni *et al.*, 2009: 14). In the absence of soap, ash was mentioned during the FGDs as one of the washing agents they could have used as a preventive measure to curb the spread of cholera. However, from these discussions, it was apparent that not many people were using ash, as they continued to question its efficacy. The use of soap before handling food and after using the toilet helped them to cope with the cholera epidemic.

f. Caring for cholera patients

It was the responsibility of each family to take care of their own patient(s), however, that role was not equally shared between females and males as indicated in Figure 7. The FGDs revealed that caregivers, especially women were burdened as they continued with their cultural role of caring for the sick. The study indicated that in 75% of the families, females were responsible for caring for the sick. It was only in 9% of the families where this role was shared equally between males and females. Despite the inequalities the strategy of home nursing was used by the Budiriro community to cope with the impact of the cholera epidemic.

g. Hygiene practices adopted in Budiriro

A number of hygienic practices were adopted by the respondents as a way of preventing the spreading of the cholera disease. Some of these practices entailed behavioural change on the part of the respondents because they were part of their culture. They included those developed for the treatment and control of cholera in Zimbabwe (WHO, November 2004: 40), though not exhaustive as follows:

- i. Avoiding shaking of hands as a way of coping with cholera epidemic - the practice of shaking hands was publicly denounced by the Ministry of Health and Child Welfare (MoH&CW). Therefore people desisted from shaking hands with the aim of reducing the rate of cholera spreading. In Zimbabwe, shaking of hands is done for various reasons and is part of the Zimbabwean communication culture. People greet each other by shaking hands, which is also a gesture for expressing bereavement. During the cholera epidemic, the respondents were prepared to suspend the handshaking practice in exchange for reduction in the spreading of cholera.
- ii. Hand washing - traditionally, people washed hands in a dish shared by the whole family but this procedure has been on the decline. During FGDs in Budiriro, the participants expressed dismay at people who continued with this practice showing that it had lost popularity. They indicated that due to infectious diseases like cholera

people were now expected to wash hands using the run-to-waste hand washing method. Washing of hands before and after handling food was also reported to be common during the FGDs. In addition, the participants reported that despite the challenges of limited water supplies, they washed hands after using a toilet, changing nappies and before handling food. This strategy helped them to reduce the rate of cholera spreading.

- iii. Cooking at funerals – the MoH&CW discouraged the cooking of food at funerals, a traditional practice widely done in the country. This was done to mitigate and cope with the impact of cholera. The ministry officials instructed the relatives of the deceased person(s) not to prepare food at funerals. Feedback from FGDs showed that this instruction was largely followed in appreciation of the need to reduce the spreading of cholera.
- iv. Reduced time between death and burial – in order to avoid overstressing the already collapsed and malfunctioning sanitation facilities, and to remove the possibility of feeding people at funerals, the duration between death and burial was reduced. This helped the Budiriro community to cope with the spreading of cholera and its impact.
- v. Suspension of body viewing – the process of conducting body viewing was temporarily suspended by the health authorities in order to cope with further infections. Once a person was declared dead, the relatives were instructed not to go through a traditional body viewing process usually just before burial. Body viewing has a dual process of (a) paying the last respect to the dead and (b) giving the last chance to the relatives, family and public to verify the identity of the deceased. The respondents indicated that though they complied with these demands, they were not happy about it. However, they did not deny that these measures were instituted with the aim of coping with cholera spreading.
- vi. Wrapping of corpses – the health officials resorted to a strict strategy of wrapping corpses of people died of cholera in order to reduce contagious spreading of the disease. The corpses were wrapped in special plastics for burial. Adhering to these strict health standards helped them to cope with new infections.

- vii. Using disinfectants – the respondents said that they widely adopted the use of disinfectants as coping strategies. Organisations also responded by distributing disinfectants to people. In no unclear terms, the clinic informant stressed that the health officials at the CTC made a point that their clothes such as gumboots, gloves and aprons were all sprayed with disinfectants before getting in contact with patients. Even corpses were also disinfected on leaving the mortuary for burial. In some cases those who accompanied the infected were also sprayed with disinfectants and asked to pass through a foot bath. Disinfectants were also occasionally used by the Council to treat excreta and raw sewer, which were commonly seen along streets and open spaces due to blocked drainage systems. All this was done to cope with contamination and further spreading of bacteria.
- viii. Food hygiene – the respondents revealed that they tried at all costs to cover the food and wash it before cooking. They also said that they tried to eat the food whilst it was still hot. However, they expressed concern over the ever-presence of flowing raw sewer which compromised their endeavours to eliminate food contamination. Despite the flowing sewer, the respondents confirmed that they made sure that they thoroughly washed fruits and vegetables before cooking and eating respectively. These strategies were used to cope with the cholera epidemic.
- ix. Open food vending – Selling of food commodities of all kinds including meat and fish was reduced with the assistance of the Council police. At the time of the cholera outbreak, the practice had become rife that food was being sold at open spaces like pavements despite Council regulations that prohibited it. During the FGDs, participants indicated that although initially people resisted the Council ban, when the cholera outbreak was at its peak, even customers were no longer buying food from open spaces fearing for their lives. Eventually there was self-enforcement of the Council by-laws due to fear of death rather than fines and arrests. Banning of vending in open spaces helped communities to cope with the cholera problem.

h. Storing sufficient quantity of water for domestic use

In order to mitigate the effects of water shortages, respondents said that they had to store water in containers at home. Residents were appreciative of the assistance they received from humanitarian agencies that distributed water containers for fetching and storing water. As a result, 66.4% of the respondents indicated that they were using sealed containers to fetch water which they eventually stored at home. Sealed containers were the most ideal storage facilities in order to minimize chances of water contamination. However, the major challenge was the inadequacy of the storage facilities needed to store adequate water for the entire family. This was noted when 61.1% of the respondents showed that their storage capacity was inadequate. Nevertheless, storing water at home helped to reduce the spreading of cholera disease since it improved their access to safe drinking water.

i. Water Treatment /purification methods used at household level

The respondents said that they reacted to the cholera epidemic by practising domestic treatment of water at household level to minimise the risk of being infected by the cholera bacteria. The study indicated that 40.7% of the respondents coped by treating the water at their homes before using it, whilst 32.4% of the respondents indicated otherwise as shown in Figure 15. Only 1.8% of the respondents said that their water was already safe when they received it and 24.1% were occasionally treating water. Possibly the cholera epidemic could have been worse considering that the majority of the residents were getting their water from unclean sources. The treatment of water reduced the risk of cholera.

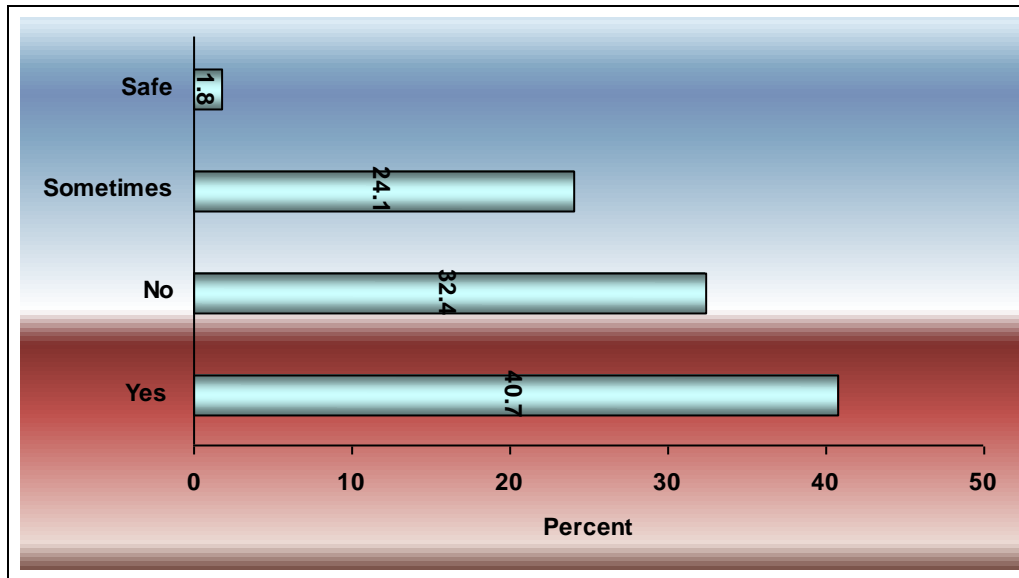


Figure 15: Incidences of treating water by respondents

j. Water treatment methods used in Budiriro

The study revealed that Budiriro community used a plethora of domestic water treatment methods as strategies to cope with the cholera epidemic. Amongst the methods they used the following were revealed:

- i. There was consensus amongst participants that the use of aqua tablets was the main method of domestic water treatment adopted by people. Data indicated that 62.6% of the respondents used aqua tablets. During the FGDs, some of the participants indicated that before humanitarian agencies started distributing aqua tablets free of charge, communities bought their own stocks from pharmacies. However, due to religious reasons, members of the apostolic sect said that taking any kind of tablets was inconsistent with their beliefs, therefore they shunned using them.
- ii. Next on the hierarchy of use were chemicals, with 20.6% of respondents confirming their use to treating water at home although they raised concern about the odour, which made water less palatable. Just a few of the respondents said they used Jik Regular to treat water.

- iii. Boiling was at the bottom of the hierarchy with 13.1%. Respondents indicated that boiling was the last option used because it was laborious and too expensive since it entailed buying firewood. Others complained that the water turned cloudy immediately after boiling and this discouraged them from continuing with the practice.

However, despite the challenges noted in the above strategies, the total effect helped the Budiro community to cope with further cholera infections.

k. Mobile provision of clean drinking water

The study showed that many strategies were adopted by the government, UNICEF and other NGOs to cope with supply of clean and safe water, whose absence catalysed the rate of cholera infection. The twin processes of providing people with fresh clean water using tankers and drilling of boreholes both helped Budiro community to cope with the rapid spreading of the cholera disease. The respondents said that tankers brought clean water which they used for cooking and drinking. On the same note, they were quick to point out that UNICEF also drilled boreholes which provided a reliable clean water source for drinking and cooking. The respondents noted that for drinking water, they depended more on the portable water from UNICEF and borehole water than tap water. As a result, families said they prioritized water from sources they trusted to be safe for drinking and used water from those sources they rendered unsafe for other uses like bathing, washing clothes and bucket flushing of toilets. In this way, they managed, to a large extent, to cope with the spreading of cholera.

l. Use of unprotected wells to fetch water

The study indicates that at times when water was unavailable from taps the residents resorted to the use of shallow and deep unprotected wells as sources of water. Some of the wells were located within residential areas whilst others in open marshy land spaces. Water was also fetched from streams passing through the environs of Budiro. These sources were useful in that the residents could get water for washing, bathing and

sometimes drinking, but aggravated the problem because the water was contaminated. This coping strategy of resorting to the use of unprotected sources of water brought more risk of cholera infection to the people of Budiriro.

m. Sourcing water from other suburbs

During FGDs, some residents mentioned that they travelled as far as High Field and Glen Norah suburbs to fetch water. Although those areas were also affected by the deadly cholera disease, tap water was usually available. In order to mitigate the challenge of long distances to these suburbs, some participants indicated that they had to use wheelbarrows although the majority carried the water on their heads. Those who used wheelbarrows constituted 22.4% of the respondents whilst 72.9% indicated that they carried the water on their heads as shown in Figure 16. The use of wheelbarrows was reported as being handy in situations where larger quantities of water were required and more trips made carrying the water on the head unlike a wheelbarrow with a capacity to carry more. Sourcing safe clean water from other suburbs helped in reducing the spreading of cholera in Budiriro area.

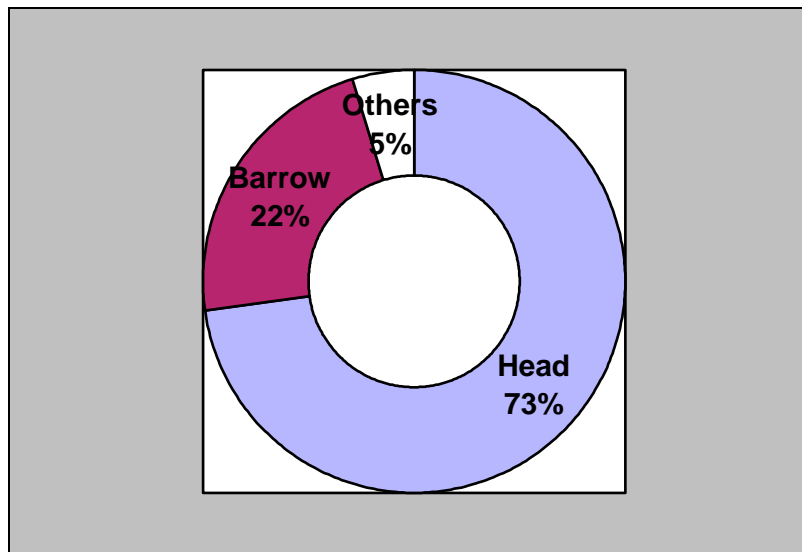


Figure 16: Means by which respondents carried water from water sources.

n. Using water sparingly

The respondents from group discussions said that because of the scarcity of water coupled with the arduous means they used to get water, they responded to the problem of water shortage by using the water sparingly in order to save it. Using the water sparingly helped them to cope with the water they saved. To some extent this helped them to control the cholera infections.

o. Recycling water as a saving strategy

The research established beyond doubt that the scarcity of clean safe water and its inconsistent supply was responsible for triggering the cholera epidemic. The respondents revealed that to cope with the shortage of water, they had to make maximum use of the little that was available to them. Thus they practised water recycling and/or multiple use to reduce the risks of cholera infections. In the discussions, they noted that they used the water left after washing clothes and bathing to flush their toilets. This helped in cleaning the sanitation infrastructure where the cholera bacteria are mostly found. In a way, this strategy helped them to cope with the cholera epidemic.

p. Fixing sanitation infrastructure

The failure, collapse and dilapidation of sanitation infrastructure were viewed as one of the catalysing factors in the spreading of cholera in the country and in Budiriro in particular. In order to reduce the probability of being infected with the cholera bacteria, the respondents said that since *Vibrio cholerae* was mostly found in faeces, they responded by initiating the fixing of the sanitation infrastructure such as blocked toilets, drainage pipes and the entire sewer system.

From all the three FGDs held, the issue of paying Council workers for these tasks was common. They said they paid cash directly to the workers in exchange for fixing the sanitation infrastructure which was no longer working, but only focusing on portions closer to their homes. It was revealed that when such a problem arose, each house within the proximity of the blockage contributed US\$2 to US\$3 which was pooled together and used to pay the Council workers. In addition, they also provided fuel to enable the

Council workers to be mobile and attend to the repair works. They noted that they were left without any option but to pay rather than to continue living with a problem that facilitated the spreading of cholera. In a way, one can safely conclude that such a strategy helped in minimising the risk of spreading of cholera to the people of Budiriro.

q. Dissemination of cholera information

The study revealed that cholera information was disseminated using various means in order to reach out to people in Budiriro to educate them and give tips to achieving quick wins against the cholera epidemic. Community meetings were the most common sources of cholera information and they accounted for 54.2% of the respondents, followed by the clinic as indicated in Figure 17. The evidence of both print and electronic media for reaching out to people in Budiriro was also noted by the respondents who said the frequency of cholera advertisements on radio, television and in newspapers was also high. In this way, the stakeholders in the health sector managed to capture the attention of many families thereby helping them to cope with the impact of the cholera epidemic.

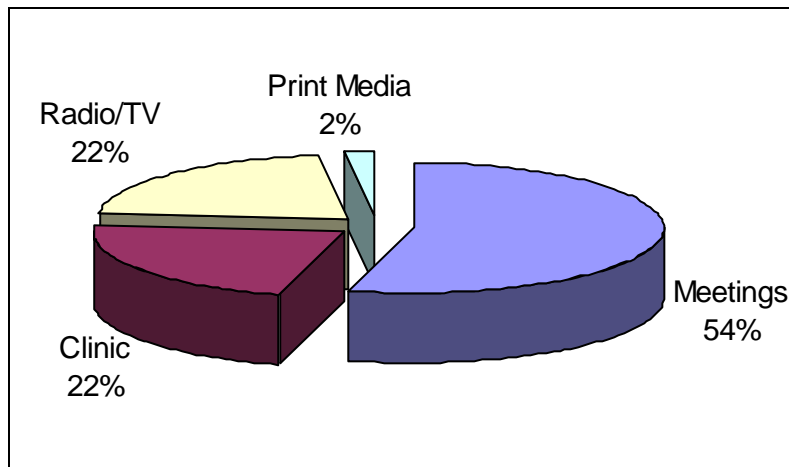


Figure 17: Main source of information on cholera in Budiriro

r. Community mobilisation for cholera health

An assessment of the composition of the nature of community meetings that contributed the 54% sources for cholera information for Budiriro residents was also done. This task

was meant to strengthen those methods that would be seen as closer to the community and therefore effective in enhancing coping practices. More so, the right information would be disseminated at the opportune time after being packaged accordingly, in order for it to remain relevant to the constituency. It was revealed that cholera health education campaigns or awareness raising sessions were held mainly by health personnel from the CTC targeting Budiriro residents. Before the cholera epidemic only 28% of the respondents indicated that at least one of their family members had been made aware of good health practices. The number of informed people increased significantly to 86% after the cholera outbreak.

The clinic informant mentioned that the public education campaigns were a joint operation comprising of the Ministry of Health and Child Welfare, City Health Department and Humanitarian agencies. They used various means including distribution of fliers, road show talks, dramas, and addressing gatherings whenever there was a group of people gathered in the area. That enabled them to reach out to the majority of the residents. Responses from the study showed that 62.9% of the respondents received the information from government health officials whilst 34.8% were reached by humanitarian agencies as indicated in Figure 18. That helped the Budiriro community to cope with the cholera epidemic.

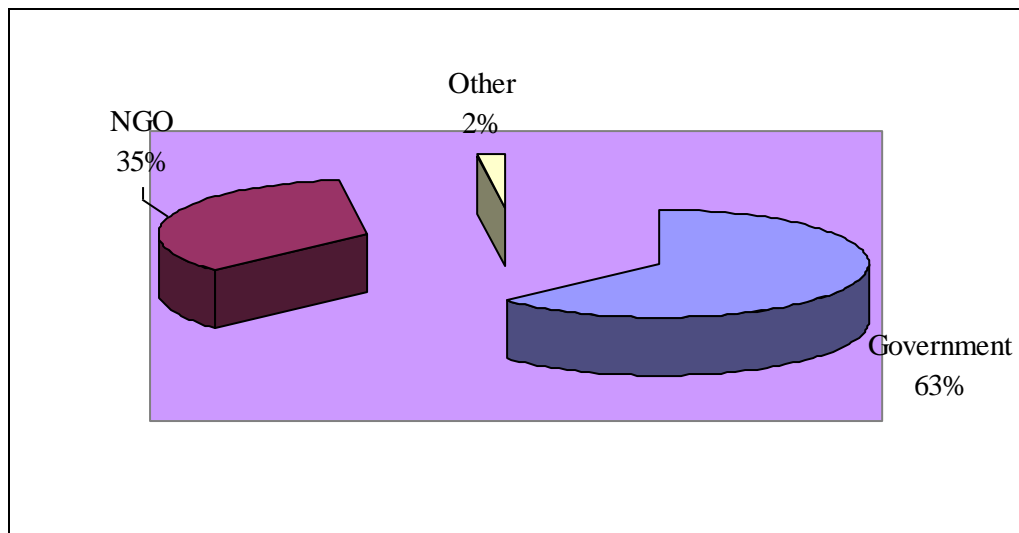


Figure 18: Organizations responsible for community awareness in Budiriro

A further analysis of those reached with cholera information showed that there was no gender discrimination with regards to attending such health awareness education campaigns. 41.2% of the respondents indicated that their households were mostly represented by either a male or a female at the awareness sessions whilst 38.2% said they were exclusively represented by a female. The balance of 20.6% was exclusively males.

From these figures, it could be concluded that cholera health education was accessible to both females and males enabling them to take informed decisions in terms of preventive measures and/or response in the event of attack. Disaggregated data on the composition of the population based on gender was not available. However, the target of the health sector partners was to reach to as many people as possible basing on the entire Budiro population of 116 569 people as shown in Table 7, in order to reduce the risk of cholera infection.

TABLE 7: DETAILS OF POPULATION GROUPS IN BUDIRO

Population age group	No. of people	Per centage
Under 1 year	3 380	3
Under 5 years	15 154	11
Under 15 years	37 185	28
15 years and above	79 034	59
Total No. of people	116 569	100

Source: Central Statistics Office – Projection from 2002 census.

4.3 Economic coping strategies for meeting cholera induced expenses

a. Borrowing to finance financial deficits

The research revealed that the negatively impacted families responded by borrowing money to finance costs associated with the cholera outbreak. At least 45.5% of the respondents indicated that they borrowed money from relatives (63.6%) and from friends (27.3%). Some of the direct costs they incurred included medical consultation fees, drugs, transportation, food and coffins among other expenses. Because of all these expenses, borrowing money became the most effective coping strategy to the impact of the cholera epidemic.

b. Buying water for domestic use

It emerged from the participants during FGDs that when the cholera became protracted, owners of water wells located in the homestead started charging for the water at about R5 to US\$3 per 20 litre container. Some even dug their own wells within their homesteads at a cost of R300.00. This was done in a bid to cope with water shortages during the cholera epidemic. Some went to the extent of buying bottled water which they did just for a very short period of time because of the costs involved. These and other means were used as coping strategies by the Budiriro community during the cholera crisis period that started in 2008.

4.4 Strategies to cope with environmental impact

a. Solid waste disposal methods

When the first cholera outbreak cases were reported in August 2008, Council was no longer collecting garbage as reflected by 83.2% of the respondents who said garbage was not collected at all. Only 14% said garbage collection was being done once every week in their area. Residents had to find alternative ways of disposing the uncollected garbage. Dumping of solid waste became the adopted coping strategy for most families as shown in Figure 19. Feedback from the respondents indicated that 70.1% of them were dumping solid waste at undesignated sites whilst 12.1% resorted to burning the waste.

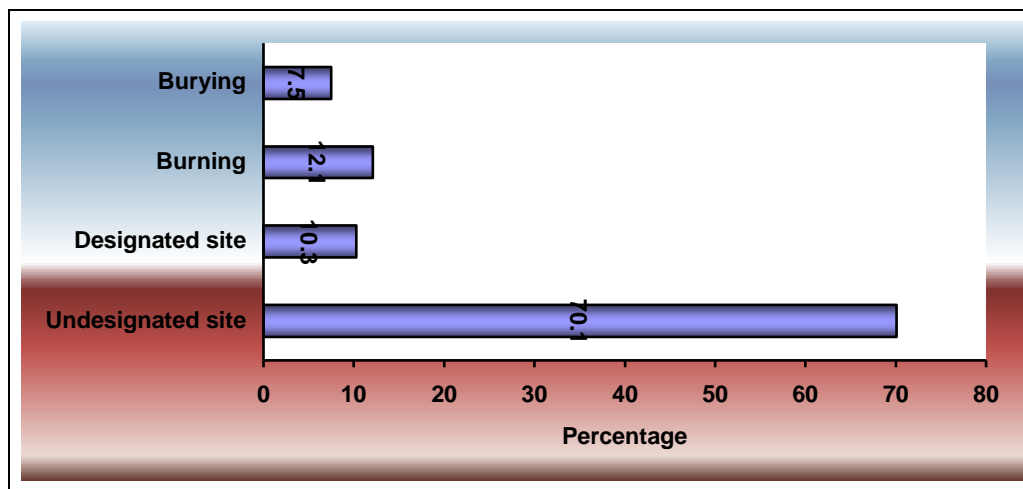


Figure 19: Methods used to dispose solid waste by respondents in Budiriro

b. Community clean up campaigns to remove solid waste

Clean up campaigns were used to clean solid waste and accumulated sewer in the drainage system. The ever accumulating sewer kept *Vibrio cholerae* alive and active thereby continuing to infect people. Therefore cleaning it through community clean up campaigns meant reducing the risk of infection. From the study, 45.5% of the respondents indicated that they participated in the clean up campaigns that were conducted in their area. It was also revealed that these campaigns were done by communities supported by humanitarian agencies that provided material and logistical support like face masks, shovels, brooms, wheelbarrows and IEC materials. To a larger extent, this strategy contributed immensely to the control of the cholera epidemic.

c. Coping with limited toilet facilities

Budiriro residents reported that 35.5% of their home toilets were malfunctioning at the time of the cholera outbreak forcing them to find other alternative means to relieve themselves. In the majority of cases, the toilets had blocked due to burst of main sewer pipes and blockages in the sewer system due to non availability of water. Figure 20 shows that 67.3% of the respondents ended up using the open field, thereby contributing to further contamination of open spaces and eventually water sources which were located in the same area.

The idea of burying in the crop fields was not very common. Other options contributing to the 15.4% included use of neighbours' toilet, defecating in bucket and plastics and then dumping the waste in fields and drainages. Participants in the FGDs revealed that some people even used open buckets to relieve themselves at night and then empty them the next morning. There were other people who also defecated directly in drainage systems. That was the reason why, during FGDs, participants complained of faeces everywhere, putting children's lives at more risk as they play outdoors.

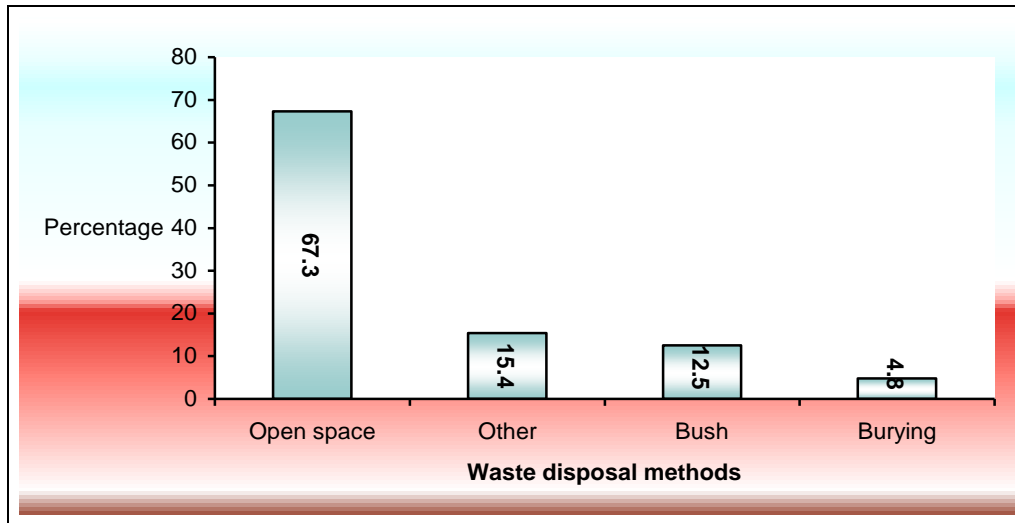


Figure 20: Defecation sites in response to limited toilet facilities in Budiriro

There were also reports of families that reopened old pit latrines which were built at a time when they were constructing their houses years back. These temporary toilets had been closed and forgotten after the commissioning of water system toilets in the houses. Similarly, some families even dug their own pit latrines to cope with the malfunctioning water system toilets. Although some of these coping strategies were unhygienic, their combined effect contributed to reducing the cholera risk.

4.5 Challenges

Discussions with the participants during FGDs and with the key informant at Budiriro polyclinic identified a number of challenges which they said negatively affected the effectiveness of some of the coping strategies that were adopted during the 2008/9 cholera period. Some of the challenges were institutional, whilst others were at individual level. It was also pointed out that culture and religion played important roles in influencing changes. Below are some of the challenges that were identified as having contributed to the high cholera cases in Budiriro:

- i. Patients reported late to clinic – reports of patients reporting to clinics when the disease was already advanced were cited by both the health personnel and the community members themselves. This was confirmed by the responses from the

survey that indicated that 22.4% of the patients under study took days to decide to go to the clinic for treatment. Respondents saw no reason for going to the clinic, which they said was almost closed. It was also the respondents' view that clinics only started helping patients after UNICEF had intervened.

- ii. Ignorance of the disease – during the infancy stages of cholera, the general population was not familiar with the signs and symptoms of the disease. More so, they did not know that a simple solution of Oral Rehydration Solution (ORS) could be used effectively to arrest the cholera disease if detected early. Public health education was also done late and in some sections it was not done at all.
- iii. The first cases that were recorded during the early period of the outbreak were kept secretive. Not much information was disseminated to the public, trying to portray a situation that the disease was under control. The government only requested for external support from its strategic partners in December 2008, yet the cholera outbreak started in August 2008. According to the Zimbabwe health cluster weekly bulletin number 4 (OCHA, 2008:1), a total of 28 492 cases of cholera and 1 557 deaths had been reported by 26 December 2008.
- iv. It was also reported that people did not take the initial outbreak seriously. As a result, people had no idea of how to handle patients. Moreover, the extent of the problem was not known even within government itself.
- v. Garbage was not frequently collected ending up accumulating in open spaces even within the vicinities of the houses. Therefore the dump sites became breeding places for vectors like flies and bacteria.
- vi. Constant blockages of toilets and sewer discharging effluent into the yards, pavements and along the roads contributed to the spreading of cholera disease.
- vii. Hand washing was compromised by continuous non availability of adequate quantities of clean and safe water.

- viii. Use of soap in public places - usually public places did not have soap or any other disinfectant most of the times making it difficult to practise personal hygiene.
- ix. Cultural practices – participants who attended the FGDs said although eventually people were well informed about cholera, it was difficult to observe some of the preventive measures especially when dealing with relatives and friends. For instance, some continued with hand shaking during funerals including cooking of food at these gatherings.

4.6 Conclusion

In this chapter, the various coping strategies that were used by the Budiro community were discussed. It could be concluded that at the time of the cholera outbreak in August 2008, water and sanitation services had reached their lowest levels thereby catalysing the spreading of cholera. As such, the prevailing circumstances needed concerted efforts from all likeminded stakeholders to arrest the impact of cholera. More so, the complexity of the epidemic needed a multifaceted mix of coping strategies in order to address a wide array of impacts that resulted from the catastrophe. That justified why the coping strategies outlined in this chapter were implemented at individual, household and organizational level with the aim of reducing the cholera risk. The chapter concluded by highlighting some of the noted challenges that worked against the opted coping strategies, thereby compromising community and organizational efforts to minimize the impact of the cholera epidemic in Budiro suburb.

CHAPTER 5

RESULTS, CONCLUSIONS AND RECOMMENDATIONS: STRENGTHENING COPING STRATEGIES

5.1 Introduction

This chapter presents the results of the research into the strategies to cope with the impact of the cholera epidemic in Zimbabwe from 2008 to 2009, focusing on Budiriro high density suburb in Harare. The results cover the social, economic, psychological and environmental aspects of the cholera outbreak. Associated coping strategies to the impact are also presented with the aim of strengthening local communities and external stakeholders' response and mitigation capacities to cholera outbreaks in future. The results are used to draw a summary conclusion for the entire research thereof. Last but not least, recommendations are formulated, which if implemented would reduce community risk and vulnerability to cholera in the immediate and long-term period. Results of this study are hereby presented in terms of the study objectives.

5.2 Results of the study

a. Impact of the cholera epidemic

The following emerged from this study as key impact of the cholera epidemic in Budiriro. They are the social, economic, psychological and environmental impact which is presented in order of severity as revealed by the study results. On top of the ranking is high mortality rate, followed by economic and financial losses; high impact on women; post traumatic stress and environmental pollution.

i. Social impact of cholera

❖ High mortality rate

There was a high death rate from cholera in Budiriro where the case fatality rate (CFR) of 2.3% was recorded. This figure is much higher than WHO's acceptable rate of 1%. Budiriro also had a higher CFR than the national rate of 1.7%.

Fourteen per cent of the infected people died (N = 108). This high rate may not be surprising since the sample was obtained from the cholera hot spot (Budiro) and during the cholera peak period (25 October 2008 to 3 January 2009). Bearing this in mind, the fact remains that there was a high death rate due to cholera in Budiro.

It was also established that people who had a history of ill health were affected more by cholera compared to those who had a history of good health. In this case, cholera had an opportunistic infection effect attacking those whose immunity system was already weak.

Corpses of persons suspected to have died from cholera were buried under supervision by health personnel, provided that the deceased died while in a health institution. Though this was done in line with general procedures and guidelines developed by WHO, communities were sceptical about the arrangements. They thought that they were being short changed since they could not perform some of the cultural routines consistent with African funerals. For instance, they were no longer able to do body viewing and the funeral procedures were shortened. Overall, death had a far-reaching impact at both household and community level in Budiro.

❖ **Impact of cholera epidemic on women**

In any disaster situation, women are a special group that is usually impacted more due to their vulnerability, often associated with their social and economic position in a community. The 2008/9 cholera epidemic in Zimbabwe affected more females than males in Budiro, though at national level statistics indicated that more males were affected. Results from the study showed that 59.3% of the people who were infected were females.

There were other catalytic factors that contributed to the negative impact on females, and those had something to do with women's gender roles. For instance,

women were responsible for fetching water and firewood from far distances. They walked long distances carrying and queued for clean and safe water for long hours in pursuit of reducing chances of cholera infection. In addition, women were also taking care of cholera patients at home, including accompanying them to health facilities as and when necessary. By performing these multiple roles, women found themselves at more risk to the cholera disease. Therefore the impact of the epidemic was felt more by females than by males.

ii. Economic and financial losses

The economic and financial impact of cholera was devastating. It was established that Budiro community incurred unbudgeted expenses due to the cholera outbreak. They had to finance medical bills, transportation and funeral costs. Others disposed of their household assets, whilst some borrowed beyond their capacity to repay the loans. Twelve months after the cholera epidemic, some of the families were still in debt and that had a long-term effect on their capacity to recover and respond to future disasters. Cases of families losing their breadwinners were also reported, thereby impacting on the family's ability to fend for the surviving members. The combined effect of these losses left communities at higher risk and vulnerable to any future hazards.

iii. Psychological impact - post traumatic stress

The death of 206 people in Budiro alone due to cholera left the community psychologically devastated. More so, as the procedures for disposing corpses were contrary to culture thereby raising more questions than answers. The health officials followed the recommended clinical procedures, which unfortunately were accepted with suspicion by the communities. Even to this end, some suspect that they buried wrong corpses because they were not accorded the opportunity to verify the identity of the deceased. On the other hand, the trauma that is associated with sudden death, characteristic of cholera disease, is still haunting the Budiro community. There were no

counselling services targeting the bereaved family members, especially children who lost their beloved parents prematurely. The post traumatic stress severely affected the community.

iv. Environmental impact of cholera epidemic

Land pollution was unprecedented in Budiriro due to open defecation, which became the most feasible option for residents due to limited access to working toilets. Contributing to land pollution were plastics that were deposited each morning after being used as toilets at night. Non collection of garbage by the City of Harare forced residents to dump the solid waste including soiled plastics at undesignated sites, creating an eyesore. There was limited community participation in the garbage clean-up campaigns that were done in Budiriro, yet dumping at undesignated sites continued. The odour created by land pollution and the flowing sewer resulted in an obnoxious smell. Landscape became unpleasant to view. The faecal contamination of land coupled with uncollected garbage culminated in water contamination thereby increasing communities' risk to further infection with the cholera bacteria.

b. Coping strategies to cholera epidemic in Budiriro

Results from the study showed that the community of Budiriro used various strategies to cope with the cholera impact. Below are the ranked and prioritized coping strategies used in Budiriro, starting with the most important ones:

i. Social strategies

➤ Seeking treatment from health facilities

Seeking clinical treatment was the preferred coping strategy for the cholera outbreak in Budiriro. Although it was found that patients reported for treatment late, that happened mostly during the early stages of the cholera outbreak when the clinics were not fully operational. The teaming up of government, local authorities and humanitarian agencies, which culminated in the opening up of a

Cholera Treatment Centre at Budiro Polyclinic motivated patients to seek treatment. The high death rate in the community left them without any option, but to seek medical treatment. Strategies adopted by the CTC of sending health personnel into the community, educating them about signs and symptoms of cholera and encouraging those suspected of being infected to seek treatment also contributed to the influx of patients at the CTC. Fortunately there was enhanced capacity at the CTC, enabling it to assist the community accordingly thereby contributing to the fight against the deadly cholera disease.

➤ **Fetching water from alternative sources**

Upon realizing that the cholera outbreak was exacerbated by lack of access to safe clean water, especially at household level, Budiro residents looked for alternative sources of water. Failure to provide safe tap water by Council was a challenge to the community. The community then responded by fetching water from unprotected shallow and deep wells available within their backyard and waterways. Unfortunately, these water sources contributed to the spreading of cholera due to water contamination.

The situation was later saved by the intervention of humanitarian agencies that sunk boreholes at strategic places for use by the community. In addition, these agencies also supplied the residents with portable safe clean water which they continued to replenish until the main water supply by Council improved. Residents had to endure the bottle necks conspicuous outside their houses. They had to wait long hours in water queues and some had to travel long distances to the water sources. Despite these challenges, access to safe clean water improved thereby contributing to the reduction in cholera cases, which were eventually eliminated.

➤ **Household water treatment**

Household water treatment was implemented in response to unsafe and unclean water that was available to the Budiro residents. That included water that was

being fetched from unprotected shallow and deep wells as well as Council (tap) water for those who still had it in their houses. At the time residents were not comfortable with tap water and that was reinforced by the MoH&CW that encouraged boiling water before drinking.

The water that was supplied by humanitarian agencies came treated and ready to use. Aqua tablets were mostly used for treating water due to their user friendliness. Moreover, they were readily available after having been distributed free of charge by humanitarian agencies. It was, however, noted that some households did not have adequate water storage capacity and that affected their ability to keep treated water. In addition, members of the apostolic sect did not treat water with aqua tablets due to religious beliefs associated with consumption of tablets. Nevertheless, the residents perceived treating water as an effective way of reducing the spreading of the cholera disease in Budiro.

➤ **Practising public and personal hygiene**

Lack of water and sanitation services compromised good personal and public hygiene practices in Harare suburbs. Yet cholera can be eliminated by mere practising of good public and personal hygiene. Faced with the threat of the cholera epidemic, Budiro community resorted to a number of hygienic practices to minimize the spreading of cholera. These practices included the following:

- Hand washing, mostly with soap.
- Avoiding hand shaking especially at funerals.
- Suspending body viewing for dead corpses and cooking of food at funerals.
- Spraying excreta and clothes of people coming close to those infected.
- Washing vegetables and fruits before eating.
- Cooking food thoroughly and eating it whilst hot.
- Suspending open vending and buying of food from vendors.

ii. Economic

Results from the study showed that Budiro community resorted to borrowing money to finance costs due to the cholera epidemic. Some of the costs they had to sponsor included medical bills, transportation and funeral expenses. Others disposed of their household assets like television sets, DVDs, radios, furniture, bicycles and sewing machines.

iii. Environmental

Persistent structural and operational challenges in the Council, in particular the Waste Management Department, resulted in non collection of solid waste. The department was constrained by lack of human resources, finance and capital to discharge its mandate. Residents were left without any option but to dump solid waste mostly at undesignated sites. During 2008 and 2009, heaps of garbage were found everywhere in the suburb. Streets, drainage ways and open spaces were filled with garbage, providing an environment conducive to the breeding of pathogens like the cholera bacteria.

When it became apparent that there were no resources and capacity within Council to restore water and sanitation infrastructure, residents resorted to open space defecation. The dumping sites were also favourable areas for open defecation. This was so because residents had to dispose of human waste due to massive toilet and sewer blockages. This was a negative coping strategy that contributed to land pollution and water contamination. The onset of the rainy season also accelerated the spreading of cholera due to faecal water contamination caused by rain water runoff.

The above strategies were embraced and practised in order to reduce the risk of the cholera epidemic.

5.3 Contributing factors

The study revealed challenges faced by Budiro community in coping with the cholera disease. These emanated from:

- (a) Sewerage spillages
- (b) Non-availability of clean safe water
- (c) Inaccessibility of water
- (d) Inadequate water storage capacity
- (e) Late response by authorities among others. These militated against efforts to cope with the impact of cholera.

Continuous sewer spillages created an enabling habitat for *Vibrio cholerae*, the non-availability of clean and safe water made the practising of good hygiene difficult. On the same note, the lack of adequate water storage capacity meant that families had to do with less than recommended quantities of water per person per day and the late response by authorities compromised early containment of the cholera disease. That is why it took longer to stop the spreading of the cholera disease resulting in the deaths of 4 288 people nationally and 206 people in Budiriro.

5.4 Conclusion

The research concluded that the cholera epidemic in Zimbabwe was caused mostly by contaminated water due to absence of basic water and sanitation facilities. Local authorities were stretched to the extent of failing to provide services meeting the minimum health standards expected for decent living. As a result, residents were forced to use other coping strategies, some of which were detrimental to their short-term and long-term health conditions. Although the response strategies by stakeholders in the health sector comprising of government, local authority and humanitarian agencies helped to stop the problem, their efforts to date have not managed to eliminate the root cause of the problem.

Addressing the cholera threat in Zimbabwe would not be sustainable without addressing the cause of the problem because of the interrelationship of the challenges that have been haunting the country over the past decade now. For instance, the economic meltdown contributed significantly to the cholera outbreak due to lack of financial resources by government and local authorities to recruit and retain qualified and experienced

personnel, let alone maintain and replace basic water and sanitation infrastructure. The kaleidoscopic political atmosphere which prevailed prior to the cholera outbreak resulted in a leadership wrangle that culminated into the formation of an inclusive government in 2009 under the Global Political Agreement. As a result efforts were focused on political survival at the expense of social, economic and national issues.

The Pressure and Release model (Figure 6), summarises the cause of the cholera problem. Therefore unless and until these interlinked problems are dealt with, Zimbabwe will continue to be at risk of infectious disease outbreaks, especially cholera.

5.5 Recommendations

The recommendations that follow recognise the complexity of the economic and humanitarian crisis in Zimbabwe at the time. Without addressing the myriad of the root causes of the problem identified in the research, no meaningful resolution to the cholera risk may be achieved. There is the realization, recognizing that cholera was just a manifestation of the multiple problems in the country and in particular the health sector. These recommendations are thus categorised into immediate, medium and long term bearing in mind the intricacy of cholera and the enormous resources required to manage it.

a. Immediate – within the next twelve months

The following recommendations recognise the complexity of the humanitarian and economic crisis in Zimbabwe. There is a realisation that most of the unsafe conditions that triggered the cholera outbreak in 2008 still exist. Therefore there will be need to hastily adopt the following actions in order to avert a possibility of a repeat of the cholera disease outbreak in view of the rainy season that has just started. The recommendations are crafted to cater for short-term and long-term developmental needs, which when adopted will see the resuscitation of the water and sanitation services. It is therefore recommended that:

- i. Council should open blocked drainage systems as a matter of urgency in order to improve water drainage. This reduces changes of land and water pollution. Considering the limited resources available to the local authorities, Harare City may provide materials and logistical support for communities so that they clean their own environment. Similarly, all leaking and blocked sewer pipes and toilets should be attended to in order to reduce chances of water contamination.
- ii. Council should consistently provide disposal bins for waste disposal and collect same regularly to facilitate communities to be able to practise good personal and public hygiene. This would significantly reduce incidences of dumping solid waste in undesignated sites.
- iii. Government should open space for humanitarian assistance to reach needy people unconditionally. This calls for improved communication and coordination between government and NGOs so that there is relaxation regarding the need for police clearance for purposes of mobilizing communities for public meetings. In the same vein, NGOs should adhere to the Code of Conduct for the International Red Cross and Red Crescent Movement and Non-Governmental Organizations in Disaster Relief (Sphere Project, 2004: 315), so that they do not compromise their impartiality.
- iv. Once the humanitarian space is opened, massive public health education campaigns should be commenced in order to ensure that residents have the right information about cholera. Issues of good personal and food hygiene should be covered in the sessions. The focus should be to make public hygiene everyone's concern so that there is voluntary community participation in contributing to a clean environment in every suburb.
- v. In carrying out the cholera education awareness campaigns, churches and schools should be included since they have access to important masses that can play a major role in disseminating the information. Moreover, children are a good vehicle of change and the earlier they receive the information within their life cycle the better.

On the other hand, church leaders could play a significant role to influence changes within their organization.

- vi. Community-based cholera education and awareness raising sessions should also address some of the perceptions regarding cholera. These include explaining that pregnancies are not terminated when one is infected, and the reasons for suspending body viewing when one dies of cholera. Procedures should also be explained so that people develop confidence in the system in order to dispel perceptions that they will not end up burying wrong corpses. There should be explanation that the system was credible and burying of wrong bodies would be a genuine and isolated mistake.
- vii. Community leaders and health officials should join hands to encourage those infected with diarrhoea, if suspecting cholera, to seek early treatment. Therefore the signs and symptoms of cholera should be communicated to the communities using various means, as was the case during the 2008/9 outbreak.
- viii. Humanitarian agencies should be encouraged to distribution of Non Food Items forthwith, targeting known cholera hot spots like Budiro. This should be done through coordination by the City Health Department of Council so that there is proper targeting, thereby reducing duplication and double dipping. In doing this, strategies that reach out to the most vulnerable (e.g. disabled, the elderly, orphans and vulnerable children and child headed families) should be used.
- ix. Community engagement and participation should be central to all the activities that target them so that they contribute their views thereby minimising imposition of assistance by humanitarian agencies. Community involvement and coordination address fears from concerned parties leading to trust building. By taking this route, issues of recipients of aid waiting in queues for too long and cases of inappropriate entitlements would be eliminated.

- x. Water treatment tablets should also be distributed as a prevention strategy rather than waiting for the cholera outbreak. Included in the distribution pack should be gloves so that communities would be able to protect themselves in the process of unblocking sewer systems. Safety gloves were not distributed during the 2008/9 cholera outbreak and this exposed communities to further infections.
- xi. When distributing the NFIs, the beneficiary selection criterion should be clear and well understood by the communities, especially where targeting is being practised, leaving others out.
- xii. There is need to investigate the institutional arrangements that are currently in place with regards to maintenance of community water sources like boreholes. This is essential so that communities are empowered to take full responsibility for these resources with technical backstopping support from the Council. In the medium term, Council and communities should agree on how such infrastructure should be treated after tap water has been fully operational.
- xiii. Through the Community Health Workers (CHW), Council should conduct door to door checking of personal toilet hygiene, and carry out education sessions at household level. Toilet hygiene competitions could be done to motivate households to participate and keep their environment clean. Those found not complying after being educated, should be penalised using a criteria agreed upon by the same community.

b. Medium term: from 12 to 36 months

- i. Government should internalise the Zimbabwe Cholera Control Guidelines and adopt some best practices that worked well in other countries like Afghanistan, where simple procedures were successfully followed to stop the cholera epidemic. The procedures included (1) massive and extensive behavioural exchange programmes, (2) personal hygiene and safe water practices (3) house to house hygiene education meetings and (4) water treatment with chlorine at source. Intravenous injection and

antibiotics should be the last resort for a cost effective and successful case management model.

- ii. City Health Department should be capacitated to operate a mobile clinic that reaches communities within their localities so that only severe cases are referred to the clinics, thereby decongesting the health facilities.
- iii. Health stakeholders should come up with acceptable water treatment methods for domestic use by the apostolic sect members. This will be possible considering that currently the same people do not have a problem drinking chlorinated tap water. What they do not want are the tablets and not the chemical ingredients in them.
- iv. Government should continue to prioritize the health sector as was the case in the 2010 national budget where the MoH&CW received 16% of the national resources, thus surpassing the SADC guidelines of 15%. However, there is still need to address the human resources issues on a more permanent basis by addressing concerns of the health workers. Conditions of service of health workers should be in line with the ones prevailing in the SADC region in order to minimize brain drain.
- v. The Harare City Council should consider collaborating with private doctors by offering them operating space at the various polyclinics within the city. In turn, the doctors would contribute certain agreed minimum hours by attending to patients at these polyclinics, thereby providing specialized medical services and reducing congestion at general hospitals.
- vi. Government, local authorities and humanitarian agencies should pull their resources together and revamp water and sanitation infrastructure. This entails lobbying for humanitarian agencies to change their ways of working which prioritises saving lives rather than improving the quality of lives. Therefore humanitarian agencies should go beyond emergency response (i.e. relief and rehabilitation) by investing their massive resources into prevention (i.e. reconstruction, mitigation and preparedness). Some of

the unsafe conditions within the health sector would be addressed by repairing and replacement of the associated infrastructure.

- vii. Strengthening community participation in civic issues that affect their daily lives would enable residents to influence local and national policies. There should be clear and known forums for residents to interact, and interact with the local authority without being politically labelled and mistrusted.
- viii. Capacitating the Civil Protection Unit so it leads the process of amending the current Civil Protection Act which is not holistic. This policy is not an all disaster policy, rendering it ineffective when disasters like cholera occur.
- ix. In Budiriro, there was total absence of participation by local Non Governmental Organizations (LNGOs) and Community Based Organizations (CBOs). As such, international Non Governmental Organizations (LNGOs) should build the capacity of local NGOs so that they also play a major role on issues that affect local people. LNGOs and CBOs are better placed to mobilize local communities because they understand the local context better (culture, religion, etcetera). There should be a national approach to compel INGOs to work jointly with local organizations. Such an approach would leave skills and capacity within the country should the INGOs decide to close or relocate.
- x. Counselling services should be offered to people - distressed people - during and after disasters like cholera have struck. These services should be targeted at special groups like children who would have lost their beloved parents and siblings through premature deaths, and finding it difficult to understand the circumstances.
- xi. Acknowledging that Council has not yet fully managed to supply all residents with safe clean tap water, there would be need to increase the number of boreholes in suburb so that access to water is guaranteed.

- xii. Researchers should find other alternative hand washing agents to complement soap in view of the low uptake of ash, especially in Budiro.
- xiii. In pursuance of long-term solutions to the disaster impact, children who were left more vulnerable by the cholera should be assisted by the Department of Social Welfare, especially with educational support in order to build their future.
- xiv. Government, local authorities and humanitarian agencies should mainstream gender, children, the elderly and disability needs in their programming, especially when responding to crises. The need of these special groups should be considered throughout the whole disaster cycle of response, rehabilitation, mitigation and preparedness.

c. Long term: from 36 months onwards

- i. Government should make basic health a human rights issue in practice and not theory as is currently the case. The death of one person from cholera should be of national concern. Issues of access and availability of health services and facilities should be addressed in order to make them more affordable and as near to people as possible. This includes transportation infrastructure and cost so that people in rural areas are also able access basic health services.
- ii. Adopting a holistic approach to the cholera problem since it was a manifestation of several other challenges within the social, economic and political realm. For instance, without electricity, water pumping becomes impossible.
- iii. Internalizing public health into the education curriculum, starting from primary level so that behavioural and cultural issues are dealt with at early stages of life.
- iv. Management and control practices like the polluter must pay, there must be cost sharing arrangements in water treatment by the polluter, recycling of water for

industrial use and measures to reduce unaccounted for water should be formulated and strengthened in principle, with the participation of the consumer.

- v. Government should consider setting up a Statutory Board mandated with the responsibility of disaster management and research so that it advises the country on policy issues.

5.6 Conclusion

This chapter looked at the results of the study, categorising them into social, economic, psychological and environmental impact and coping strategies. Aspects covered under each of the four objectives of the study were outlined. The chapter also presented a conclusion for the whole research and ended by making a number of recommendations for consideration. These recommendations were grouped into immediate, medium and long term to guide on prioritization, resource allocation and implementation.

REFERENCES

1. Al Gasseer, N., Dresden, E., Keeney, G.B. & Warren, N. 2004. *Status of women and infants in complex humanitarian emergencies*. [Online]. Retrieved from: <http://www.acog.org> [2010, August 14].
2. Al Jazeera. 2008. *Zimbabwe blames cholera on Britain*. [Online]. Retrieved from: <http://english.aljazeera.net> [2010, October 4].
3. Bankoff, G., Frerks, G. & Hilhorst, D. 2007. *Mapping vulnerability. Disaster, development & people*. Forest Stewardship Council.
4. Batta, F. & Mgemzulu, O. 2009. *Report of Zimbabwe cholera response coordination review*. OCHA ROSA and Oxfam GB.
5. BBC News. 2008. *Zimbabwe cholera is over – Mugabe*. [Online]. Retrieved from: <http://news.bbc.co.uk> [2010, October 4].
6. BBC News. 2008. *Kenya PM calls for Mugabe removal*. [Online]. Retrieved from: <http://news.bbc.co.uk> [2010, October 4].
7. Brette, P.R. & Thomas, M. 1984. *Infectious and communicable diseases*. London: William Heinemann Medical Books.
8. British Medical Association. 1999. *Health and environmental impact assessment. An integral approach*. London: Earthscan.
9. CBC News. 2008. *CBC News*. [Online]. Retrieved from: <http://www.cbc.ca.health> [2010, September: 11].
10. Chartered Institute of Environmental Health. 1997. *Agenda for change*. Environmental Health Commission. London
11. Christie, B.A. 1987. *Infectious diseases: Epidemiological practice. Volume one*. New York: Churchill Livingstone.

12. Cholera exists more widely than do basic food supplies. 2009. *The Independent-Zimbabwe*. 22 January: 7.
13. CIDA. 2003. Gender equality and humanitarian assistance: A guide to these issues. Canada.
14. Department of the Environment and sustainable Development. 1994. *The UK strategy on sustainable development*. London: HMSO.
15. Dizon, J.J., Alvero, G.M., Joseph, P.R., Tamayo, J.F., Mosley, W.H. & Henderson, D.A. 1965. Studies of cholera EI Tor in the Philippines. Characteristics for cholera EI Tor in Negro Occidental province, November 1961 to September 1962.
16. Enarson, E. 2006. SWS fact sheet: Women and disaster. Applied Disaster and Emergency Studies Department. Brandon University, Manitoba.
17. Garbage and sewer everywhere. 2008. *Environmental News Services*. 10 December: 3.
18. Felsenfeld, O. 1966. *A review of recent trends in cholera research and control*. Tulane University Research Center. LA. USA.
19. Food and Nutrition Council. 2010. Zimbabwe National Nutrition Survey. WHO, Zimbabwe.
20. Gorbach, L.S., Bartlett, G.J. & Blacklow, R.N. 1998. *Infectious diseases..* London: W.B Sanders Company.
21. Griffith, C.D., Kelly-Hope, A.L. & Miller, A.M. 2006. *Review of reported cholera outbreaks worldwide, 1995-2005*. [Online]. Retrieved from: <http://www.ajtmh.org> [2010, September 10].
22. Howard, G. 1996. *Urbanization, sanitation and environmental health*. London: Commonwealth secretariat.
23. Huttly, S.R., Morris, S.S. & Pisani, V. 1997. Prevention of diarrhoeal in young children in developing countries. *Bulletin of the WHO* 75.

24. IASC. 2006. *Gender handbook in humanitarian action. Women, girls, boys and men: Different needs – equal opportunities*. UN.
25. Irin. 26 May 2009. Zimbabwe: Cholera is not going away anytime soon.
26. IUCN. 2007. Gender and climate change: Women as agents of change.
27. Jamison, T.D., Breman, G.J., Measham, R.A., Alleyne, G., Claeson, M., Evans, B.D., Jha, P., Mills, A. & Musgrove, P. 2006. *Disease control priorities in developing countries*. World Bank.
28. DNA blueprint of cholera. 2000. *Journal of Environmental Health*.
29. Kakar, F., Ahmadzai, H.A., Habib, N., Taqdeer, A. & Hartman, F.A. 2008. A successful response to an outbreak of cholera in Afghanistan. *Tropical Doctor*.
30. Kirigia, M.J., Sambo, G.L., Yokouide, A., Soumbey-Alley, E., Muthuri, K.L. & Kirigia, G.D. 2009. Economic burden of cholera in the WHO African region. BioMed Central.
31. Leedy, P.D. & Ormrod, J.E. 2001. *Practical research: Planning and design*. 7th ed. New Jersey: Merrill Prentice Hall.
32. Lipp, K.E., Huq, A. & Colwell, R.R. 2002. *Effects of global infectious disease: The Cholera model*. [Online]. Retrieved from: <http://cmr.asm.org> [2010, September 11].
33. Martin, M. 2008. Zimbabwe's humanitarian deepens. NPR.
34. Medecins sans Frontieres. 2009. Beyond cholera. Zimbabwe's worsening crisis,
35. Mench, D. 2008. Change for women's sake. Undergraduate Research Journal at UCCS.
36. Mims, A.C. 1982. *The pathogenesis of infectious disease*. London: Academic Press.
37. Mufema, A. November 2006. A review of the health scenario in Zimbabwe. Notational Association of Non Governmental Organizations. Zimbabwe.

38. Muranda, Z. 2004. *Dissertation writing: Concepts and practice*. University of Zimbabwe Publications.
39. NewZimSituation.com. 2010. [Online]. Retrieved from: <http://newzimsituation.com> [2010, September 20].
40. Oxley, M. 2005. *Responding to disasters*. <http://tilz.tearfund.org> [2010, October 15].
41. Redr uk. 2009. *Global wash cluster coordination project. Water, sanitation and hygiene (WASH) cluster coordination handbook. A practical guide for all those involved in the water, sanitation and hygiene cluster*. Global wash cluster.
42. Reese, E.R. & Douglas, G.R. 1986. *A practical approach to infectious diseases*. Boston: Little Brown and Company.
43. Rowland, J.A. & Cooper, P. 1983. *Environment and health*. Edward Arnold. Maryland, USA.
44. Salisbury, D., Ramsay, D. & Noakes, K. 2006. *Immunization against infectious disease*. London: Department of Health.
45. Saywell, D. & Cotton, A. 1998. *Strategic sanitation approach. A review of literature*. Loughborough University.
46. Schuftan, C. 2008. *The health situation in Zimbabwe: Letter to WHO DG*.
47. Smith, C.B. 1999. *Community health. An epidemiological approach*. New York: Macmillan.
48. Sokwanele. 2010. *Highlights of the 2010 budget*. [Online]. Retrieved from: <http://www.sokwanele.com> [20 July 2010].
49. Sphere Project. 2004. *Humanitarian charter and the minimum standards in disaster response*. Oxfam.

50. Stine, O.C., Alam, M., Tang, Li., Nair, G.B., Siddique, A.K., Faruque, M.S., Huq, A., Colwell, R., Sack, B.R. & Morris J.G. Jr. 2008. Centre for Disease Control and Prevention. *EID Journal, Volume 14, Number 5*.
51. Suarez, R. & Bradford, B. 1993. *The economic impact of the cholera epidemic in Peru: An application of the cost of illness methodology. Water and sanitation for health projects*. Washington DC.
52. Szewzyk, U., Szewzyk, R., Manz, W. & Schleifer, K.H. 2000. Microbiological safety of drinking water.
53. Tan, S.J., File, (Jr) M.T., Salata, A.R., & Tan, J.M. 2008. *Infectious diseases. American College of Physicians*. Philadelphia.
54. Cholera: Civil Protection Unit steps in. 2008. *The Herald*, 4 November.
55. Deadly cholera strain hits India. 2009. *The India Times*, 11 April.
56. UNDP. . 2009. *Human Development Report: Zimbabwe* [Online]. Retrieved from: <http://hdrstats.undp.org> [20 July 2010]
57. UNDP. Zimbabwe Human Development Report. 2003: *Redirecting our Responses to HIV and AIDS*. Harare.
58. UNDP/OCHA. 2009. Zimbabwe health cluster. *Weekly bulletin No.16*. 15 July [Online]. Retrieved from: <http://ocha.unog.ch> [2010, August 14].
59. UNDP/OCHA. 2008. Zimbabwe health cluster. *Weekly bulletin No. 4*. 29 December [Online]. Retrieved from: <http://ochaonline.un.org> [2010, August. 15]
60. UN-Habitat. 2007. Mitigating the impact of disasters. Policy directions. Enhancing urban safety and security. *Global report on human settlements*. London: Earthscan,
61. UNICEF. 2010. Water, sanitation and hygiene.

62. United Nations High Commissioner for Refugees. 1999. *Reproductive health in refugee situations. An Inter-Agency Field Manual*. Geneva.
63. UNOCHA/GoZ. 2010. Inter-Agency national contingency plan. Zimbabwe. July 2010 to June 2011.
64. USAID. 19 December 2008. Zimbabwe – Cholera outbreak. Fact sheet # 2. Fiscal Year (FY) 2009.
65. USAID. 2008. HIV/AIDS health profile. Zimbabwe.
66. USAID. 2009. Zimbabwe – Complex emergency. Situation report # 2. Fiscal Year (FY) 2009.
67. Water Works Digest. 1992. Preventing waterborne cholera. 1 February: 1.
68. WHO. 2009. Zimbabwe health cluster. *Weekly bulletin No. 8*. 15 March [Online]. Retrieved from: <http://ochaonline.un.org> [2010, August. 15]
69. WHO. 2009. Zimbabwe health cluster. *Weekly Bulletin No. 7*. 18 February [Online]. Retrieved from: <http://ochaonline.un.org> [2010, August. 15]
70. WHO. 1997. Health and environment in sustainable development five years after the health summit. WHO/EHG/97.8. WHO. Geneva.
71. WHO. 2004. Cholera outbreak. Assessing the outbreak response and improving preparedness. *Global task Force on Cholera*. Geneva.
72. WHO. 2010. *Global epidemics and impact of cholera*. [Online]. Retrieved from: <http://www.who.int> [2010, October 4].
73. WHO. 2009. Cholera in Zimbabwe – Update 3. 23 March.
74. WHO. 2009. Daily cholera update and alerts. Office of the WHO representative in Zimbabwe.

75. WHO. 2009. Cholera country profile: Zimbabwe. Global task force on cholera control. 31 October
76. WHO. 8 July, 2009. Underlying causes of cholera in Zimbabwe remain unattended to.
77. WHO. 2008. Epidemiological. *Bulletin No. 3*. 19 December.
78. WHO. 2009. *Health Action in Crises*. Highlights number 251. March [Online]. Retrieved from: <http://www.who.int/hac> [2010, August 14].
79. WHO. 2009. *Zimbabwe cholera control guidelines*. 3rd edition. Zimbabwe, Ministry of Health & Child Welfare.
80. Wisner, B., Blaikie, P., Cannon, T., & Davis, I. 2004. *At Risk: Natural hazards, people's vulnerability and disasters*. London & New York: Routledge.
81. Wright, G.A.N., Kasente, D., Ssemogerere, D. & Mutesasira, L. March 1999. Vulnerability, risks, assets and empowerment – *The impact of microfinance on poverty alleviation*. UNDP and DFID.
82. Yanda, P.Z., Kangalawe, R.Y.M & Sigalla, R.J. 2005. *Climatic and socio-economic influences on malaria and cholera risks in the Lake Victoria Region of Tanzania*. AIACC working paper No. 12.
83. Yoshikawa, T.T., Chow, W.A., & Guze, B.L. 1980. *Infectious diseases: Diagnosis and management*. John Wiley & Sons.
84. Zimbabwe Association of Doctors for Human Rights. 2009. Cholera in a time of health system collapse: Violations of health rights and the cholera outbreak.
85. Zimbabwe. (2008). *Global Political Agreement*. Zimbabwe
86. Zimbabwe. 1989. Civil Protection Act. [Chapter 10:06]. Harare.
87. Zimbabwe. 2002. *Zimbabwe National Health Profile*. Harare.

88. Zimbabwe. 2008 - 2009. *United Nations General Assembly Special Session on HIV and AIDS. Follow up to the declaration of commitment on HIV and AIDS. Zimbabwe country report.* Government of Zimbabwe.
89. Zimbabwe. *Zimbabwe Budget Estimates.* (2002, 2004, 2005 & 2006). Harare.
90. Zimbabwe Vulnerability Assessment. 2009. Urban food security assessment. National Report. Zimbabwe.
91. More resources needed to fight cholera. 2008. *The Independent-Zimbabwean*, 7 November: 5.

Appendix 1
Field questionnaire for cholera epidemic survey in Budiriro suburb

Introduction

I am a student at the University of the Free State doing a Masters Degree in Disaster Management and doing a research in Budiriro. The purpose of the study is to find out the coping strategies to the impact of cholera epidemic in Zimbabwe (2008/9 period) by the people of Budiriro. The specific objectives are to:

1. Examine the impact of cholera outbreaks in Budiriro suburb.
2. Investigate the coping strategies used in Budiriro.
3. Find out the challenges encountered in applying the coping strategies in Budiriro.
4. Come up with strategies that strengthen community’s resilience to future outbreaks.

The data collected and the findings thereof will be confidential treated and used for academic purposes only.

Name of Monitor: Date:

Area Name: 1. Budiriro 2. Glen View

House #:

A0. Demography

A1. Gender of respondent. 1. Male; 2. Female

A2. Respondent’s relationship with the person infected by cholera

Self	Spouse	Brother / Sister	Father / Mother	Child	Grand Child (niece, etc)	Other (Specify).....
1	2	3	4	5	6	7

A3. How was the person affected: 1. Infected 2. Death

A4. Gender of the infected person (s): 1. Male 2.Female

A5. Age of affected person.

Below 15yrs	16-25 yrs	26-35 yrs	36-45 yrs	46-55 yrs	56-65 yrs	66yr & above
1	2	3	4	5	6	7

A6. Marital Status of affected person

Married	Single	Widowed	Divorced
1	2	3	4

A7. What was the historical health status of the infected person (s) prior to cholera outbreak;

1. Good health 2. Ill health

A8. Number of people infected with cholera at household.

1	2	3	4	5+
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B0. Economic

B1. What was the primary source of income for your household prior to cholera outbreak.

Formal employment	Small business	Remittances	Informal trading & vending	Begging	Cross-border trade	. Other.....
1	2	3	4	5	6	7

B2. How would you rate your expenditure on cholera relative to your monthly income.

Very much	Much	Nothing	Little	Very little
1	2	3	4	5

B3. What was the status of infected person(s) – (tick both if applicable)

1. Breadwinner 2. Dependant

B4. During the cholera outbreak, did you borrow some money to finance cholera related costs.

1. Yes 2. No.

B5. If Yes, from where.

Financial institution	Friends	Relatives	Workplace	Others:
1	2	3	4	5

B7. If it was a loan, did you manage to repay it.

1. Yes 2. No.

C0. Social

C1. Were you always able to use soap for your daily washing (clothes & bathing)?

1. Yes 2. No

C2. During what times did you wash your hands (circle all that apply)

C2.1	After changing nappies	Yes	No
C2.2	After using a toilet		
C2.3	Before food preparation		
C2.4	Before eating		
C2.5	After eating		
C2.6	Before feeding others		

C3. What other washing agents did you use besides soap:

.....

C4. State the gender of the person who was primarily responsible for fetching water for the household.

1. Female 2. Male 3. Both

C5. What was the main source of water for your household?

Taped water	Borehole	Protected well	Unprotected well	Other (specify).....
1	2	3	4	5

C6. How often was tap water available in the house during this period.

Always	At times	Rarely available	Not at all
1	2	3	4

C7. What was the longest period when tap water was not available.

One week	More than six months	One to two months	Three to six months
1	2	3	4

C8. Did you treat water yourself before consumption?

1. Yes 2. No 3. Sometimes 4. Water was already treated

C9. Who owned the main water source, if water was drawn from well or borehole.

Family	Community	Local school	Local clinic	Neighbour	Don't know
1	2	3	4	6	7

C10. Who maintained this water source?

Self	Owner	Community	Users only	No-one	Don't know
1	2	3	4	5	6

C11. How did you draw water from the water source?

1. Buckets/small containers 2. Hand pump 3. Horse pipe/tap

C12. How did you (or the person responsible) ferry water from the water source

On the head	Wheelbarrow	Other (specify).	
1	2	3	

C13. What type of containers did you mostly use to carry your water to the homestead from the water point?

Open buckets	Sealed containers	Drums	Other(s) specify.....
1	2	3	4

C14. What type of containers did you mostly use to store your water?

Open buckets	Sealed containers	Drums	Other(s) specify.....
1	2	3	4

C15. Did you have adequate containers for storing water.

1. Yes 2. No

C16. On average, how much time did it take the person responsible for collecting water to fill a 20l container water at the water source during the cholera period.

Less than 3 minutes	4 - 10 minutes	11-15 minutes	16-20m minutes	Don't know
1	2	3	4	5

C17. On average, how much time did the person responsible for collecting water spend queuing at the water source each time you wanted to collect water during the cholera period?

Less than 15 minutes	16-30 minutes	31- 60 minutes	60-120 minutes	Don't know, it was too long
1	2	3	4	5

C18. What was the approximate distance from your family to the water source

Less than 100m	Between 100m & 300m	Between 300m & 500m	Between 500m & 1km	Between 1km & 2km	More than 2km
1	2	3	4	5	6

C19. During the cholera period, how much water did your household collect each day? (All water used for drinking, cooking, and toilet cleaning. Does not include water for gardening or animals)?

Less than 40L	Between 40 & 60L	Between 60 & 80L	Between 80 & 100L	More than 100L
1	2	3	4	5

D0. Environmental

D1. How often was garbage collected by Council during the cholera period.

Not at all	Once a week	At least once a month	Cannot remember
1	2	3	4

D2. At the time of the cholera outbreak, where were you dumping your solid waste.

Designated area	Undesignated area	Burning	Burying
1	2	3	4

D3. At the time of the cholera outbreak, was your toilet working

1. Yes 2. No.

D4. When toilets were blocked, what did you use as an alternative

Bush	Bury in field	Others	Plastics	Open field
1	2	3	4	5

D5. How would you rate the frequency of blockage of your toilet during the cholera period

every week	every month	once a year	once in 2 years	less than once in 2 years
1	2	3	4	5

D6. How would you rate the extent of sewerage spillage in your area during the cholera period?

every week	every month	once a year	once in 2 years	less than once in 2 years
1	2	3	4	5

D7. Where there any clean up campaigns done in your area?

1. Yes 2. No

D8. If YES, did you participate in some of them?

1. Yes 2. No

D9. If YES, how many of them?

1. All 2. Just a few

D10. If Not participated, why did you not?

Was not aware of them in time	Not interested	No reason.	Others
1	2	3	4

D11. What methods did you use for treatment of water?

Chemical	Aquatabs	Jik	Herbs	Boiling	Other
1	2	3	4	5	6

D12. What was your major sources of cooking/heating fuel for boiling water in your HH?

Firewood	Solar	Generator	ZESA	Other (specify.....)
1	2	3	4	5

D13. If firewood, where were you getting the firewood?

Buying	Forests	Own woodlot	Other
1	2	3	4

D14. Did you buy firewood or fetched from the forest

1. Bought 2. Forest 3. Both

D15. What gender was mainly responsible for fetching firewood from the forest during the cholera outbreak?

1. Male 2. Female 3. Both

D16. What distances was the person (in your family) responsible for collecting firewood from forest travelled

Less than 500m	500-1km	1 – 2 km	2 – 3 km	3 – 4 km	More than 4km
1	2	3		4	5

E3. Who was going to receive the above entitlements?

1. Male 2. Female

E4. How would you rate the appropriateness of entitlements you received from NGOs basing on your need?

Very appropriate	Appropriate	Fair	Inappropriate	Very inappropriate
1	2	3	4	5

E5. How would you rate the success of organizations in addressing cholera problem in your area?

Very successful	Successful	Fair	Unsuccessful	Very unsuccessful
1	2	3	4	5

E6. How timely was the external support to you?

Very timely	Timely	Late	Very late
1	2	3	4

E7. If they were to intervene again in future, would you want them to change strategy?

1. No 2. Change part of it 3. Change it completely

E8. What was your main source of information on cholera?

Radio/TV	Print media	Clinic	NGOs	Other people	Meetings
1	2	3	4	6	7

F1. Any additional information you would like me to know:

Appendix 2: Focus Group Discussion Guide

Appendix 3: Interview guide for key informants

1. Why were cholera cases high in Budiro?
2. What was the demography of the infected people?
3. What is the Catchment area for the clinic – geographical, population size, etc.?
4. How did the affected person and family members initially respond i.e. coping mechanisms before and after the outbreak?
5. Preparedness of clinic before, during and after (staffing, drugs, space, equipment, ambulances, etc.).
6. Modalities of response including treatment procedures.
7. What external support came and in what way (stakeholder analysis including their roles) and its appropriateness?
8. Logistical issues like referral systems.

Appendix 4: Authorization letter form Ministry of Health and Child Welfare

Appendix 4.

Telephone 730011

Telegraphic Address
"MEDICUS", Harare
Fax: 729154/793634 (702293 FHP)
Telex: MEDICUS 22211ZW



Reference:

MINISTRY OF HEALTH AND
CHILD WELFARE
P.O. Box CY 1122
Causeway
Zimbabwe

31 March 2010
Mr Tobias Chipare
7B Bradfield Road
Waterfalls
Harare

**RE: REQUEST FOR INFORMATION ON THE CHOLERA RESPONSE
COORDINATION AND STRATEGIES THAT WERE USED IN ZIMBABWE:
BUDIRO**

Communication on the request to conduct the above study is acknowledged.

The Ministry of Health and Child Welfare is in support of the above mentioned study, as it will benefit the complete documentation of Cholera outbreak in the country.

With this letter as a reference, could you kindly contact Harare City Health Department as Budiro falls under the mentioned Local Authority.



Dr P. Manangazira
A/DIRECTOR EPIDEMIOLOGY AND DISEASE CONTROL



Appendix 5: Clearance letter from the Research Council of Zimbabwe

Appendix 5

RESEARCH COUNCIL OF ZIMBABWE



Leadership, Innovation and Development

Cabinet Office
Block A, Delken Complex
Mt Pleasant Business Park
P.O. Box CY284, Causeway
Harare, Zimbabwe
Tel: 263-4-369407/8
Fax: 263-4-368409
Email:
Website:

Ref SC/9/

26 April 2010.

7B Bradfield Road
Waterfalls
Harare

Dear Mr Chipare,

Request for RCZ letter of clearance to carry out research on Cholera in Budiriro

RCZ has studied the documents you submitted for its consideration.

In this instance you do not need to register with the RCZ. You however have to meet the requirements governing health research.

We wish you well with your studies.


Yours Sincerely

Mr T Chirara
For Executive Director.

Board Members: Mr E M Makonose (Chairman), Prof I Sithole Nlang (Vice Chairperson), Mr S C Chigwamba, Prof I T Gangaidzo, Dr D Garwe, Mr P Kumaka, Prof O F Marwovvika, Dr W B Mutisi, Mr D R H Mwananzi, Dr A Murewa, Dr N Ndhlovu, Prof S Sibanda, Prof P Tazara

Appendix 6: Permission letter from the City of Harare

Appendix 6



CITY OF HARARE

Director of Health Services
DR STANLEY MUNGOFA
MD (Cuba) MPH (Zim)
17 July 2010

All correspondence to be addressed to the
DIRECTOR OF HEALTH SERVICES
Ref:.....
Your Ref:.....

DIRECTOR OF HEALTH SERVICES
Rowan Martin Building,
Civic Centre,
Pennelather Avenue,
off Rotten Row,
Harare, Zimbabwe.
P. O. Box 596
Telephone: 753326
753330/1/2
Fax: (263-4) 752093

Mr Tobias Chipare
7B Bradfield Road
Waterfalls
HARARE

Dear Sir

RE: PERMISSION TO CARRY OUT A RESEARCH ON CHOLERA IN BUDIRIRO


I acknowledge receipt of your letter dated 13 May 2010.

Permission is granted for you carry out a research on Cholera response at Budiriro Clinic.

You will be requested to pay USD10 administration fee prior to commencement of the study. The fee is payable to City Health Department, 6th floor, Rowan Martin Building.

Once payment is made kindly liaise with the Sister In Charge of Budiriro Clinic and Dr Zimba at Beatrice Road Hospital, who is the Chairman of the Institutional Ethics committee, for further assistance and guidance.

Please note that it is our institutional policy that written permission should be sought from the department prior to any presentation or publication of research findings.


Yours faithfully

DIRECTOR OF HEALTH SERVICES
/cb

Cc Dr Zimba - Ethics Committee
ADHS (N)
SIC- Budiriro Clinic

CITY OF HARARE 604586 *
Received from: *T. Chipare* Department: *ADHS*
Amount in words: *Two thousand*

Vote	Item	\$	c	/
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Appendix 7: Lobbying letter from the Zimbabwe Association for Doctors of Human Rights



ZADHR

Zimbabwe Association of Doctors for Human Rights

Urgent Action Needed to Address Water Shortages and Breakdown in Sanitation

19 September 2008

A serious health crisis currently looms over Zimbabwe's urban areas due to a severe shortage of running water in most areas. The Zimbabwe National Water Authority's (ZINWA) failure to treat and pump adequate supplies of water has left most urban homes dry and forced residents to rely on unsafe supplies of water. This coupled with a breakdown in the sanitation system (burst sewage pipes and lack of refuse collection and proper disposal) is threatening the health of millions on Zimbabweans.

The new Government must address this crisis as a matter of urgency. It is a matter which cannot wait for resolution of differences or 'sticking points'. Public service provision has been inadequate for several years and requires urgent and comprehensive remedial action.

Access to safe drinking water and to adequate sanitation are human rights and not privileges of the Zimbabwean population. They are determinants of health which if not made available can result in outbreaks of diarrhoea, cholera and dysentery that are life threatening. Lives have already been lost to cholera in Chitungwiza and health centres in Harare and Bulawayo are burdened by numerous cases of diarrhoea on a daily basis. It is highly likely that the number of deaths in Chitungwiza, currently reported at 12 individuals, is much higher, and that this is but the tip of an iceberg of much more morbidity. This has not been communicated to the public.

Outbreaks of cholera at any time are symptomatic of serious structural problems within the system of public works. They are more common when rains have resulted in flooding or overload of drainage systems. An outbreak in the middle of the dry season is particularly disturbing.

The public has a right to be fully informed and updated on (1) what measures are being taken to address the water and sanitation crisis and (2) what measures are in place to prevent and manage outbreaks of disease.

It is not adequate for the Ministry of Health and Child Welfare to respond to disease outbreak only after it has occurred. It is paramount that it works in conjunction with other ministries concerned, such as that responsible for water resources, and ZINWA, to ensure that disease is prevented and that Zimbabwean's right to the highest attainable state of physical and mental wellbeing is respected.

ZADHR calls for an urgent, coordinated and comprehensive response from the new Government to this crisis in water and sanitation.

6th Floor, Beverly Court, 100 Nelson Mandela Ave, Harare
Tel: 708118, 251468, 705370 Fax: 705641
PO Box CY 2415, Causeway, Harare, Zimbabwe
email: zadhr@mweb.co.zw

Appendix 8: Lobbying letter from a network of civil societies

11 December 2008

The Director General
World Health Organisation
Geneva
Switzerland

Dear Dr Chan

An appeal to the World Health Organisation; on the health situation in Zimbabwe

We, the members of the Community Working on Health (CWGH) in Zimbabwe, with a membership of about 35 civil society organizations representing a wide range of constituent groups, from Residents Associations to Community Based Organizations are writing to you to express our deepest concern at the severe decline in health and in the health system in Zimbabwe, with negative consequences for people- high mortality, extremely low life expectancy, and significant risk of untreated communicable and chronic disease. We do this because we understand public health, as articulated in the Millennium Development Goals, to be a global public good, and a matter for international solidarity.

We recognize that the current health crisis does not emanate from the health sector- it comes from wider economic collapse and the increasing extent to which people are not accessing basic public services like education, transport water and electricity. Education is a major determinant of health, but many public sector schools are now closed. Public transport has all but collapsed and private transport services are unaffordable for many. Many urban communities including Harare have gone for weeks and months without adequate water supply in a situation that has now declined over several years, leaving people vulnerable to diseases like cholera. People have not been able to access seed and fertilizer to produce food, and are unable to afford commercial supplies of food. Our assessments indicate that basic supplies for hygiene like soap, toothpaste and sanitary towels are unavailable or unaffordable for poor communities. People in this situation are facing a public health crisis of considerable proportions.

Zimbabwe's public sector health services have since independence been a buffer between people and the impoverishing and fatal impact of ill health caused by such conditions. The massive decline in our public health sector is thus a major crisis for poor people in the country, and leaves people starkly exposed to severe risk. The cholera epidemic that the country and the international community is responding to is a sign of this. While this has obtained significant international attention, we are concerned that more chronic problems like maternal mortality, reproductive illness and malnutrition are less obvious, but equally meriting of attention. People with chronic diseases like diabetes are struggling to meet costs of their treatment. Such groups have difficulty taking medications when they do not have adequate food to eat. We are concerned that the same lack of information and silence that concealed the cholera epidemic in its early stages is also leading to inadequate recognition of other health problems. This depresses an early response to preventing and managing these responses in the community.

While we have a significant health infrastructure and a highly literate population, these assets are wasted for health in the context of lack of medicine, equipment, services and staff, leaving public hospitals and clinics non functional with consequences in preventable loss of life. Again the alarming death toll from cholera is a warning of wider risks to health and of wider failures to manage these risks. The fact that this disease, which has been successfully prevented and managed in past years, is now rampant and high fatal, is a warning bell of the severity of the problem. We hope that the public health community, and the WHO, will respond to this not only with an emergency response to cholera, but with a public health response and measure to rescue our public sector health system, especially our primary health care and services.

We are aware that the World Health Organisation Assistant Director General for Health Action in Crisis Eric Laroche has been in Zimbabwe to identify how to scale up the existing UN and WHO responses. At a

time when the global community is marking 30 years of Alma Ata we hope that these responses will not stop with a vertical response to cholera. We urge WHO to more widely address what needs to be done and what resources and support are needed to rebuild our health systems from primary health care level upwards. While much attention is focused on the cholera situation there needs, for example, to be UN attention to providing inputs now during the closing window of opportunity for people to grow food, to prevent the widening of the current hunger and malnutrition situation; to prepare for supplementary feeding using local foods, to distribute bed nets and resources for spraying to prevent malaria and to ensure drug availability for malaria treatment at clinics so we do not also face a malaria crisis with the rains.

In all of this we urge you to bring people back into the centre of focus and to involve communities in your deliberations and plans on the way forward. Zimbabweans are not numbers of cholera cases or fatalities. We are people who have responded to an increasingly difficult situation, who are entitled to health as a right and who should be central in any response and rehabilitation of our system. We were concerned that WHO has not drawn us into consultations on the response to the current situation, despite our long experience and network at community level of people with abilities to organize and support primary health care, even under harsh conditions. We have a network of people trained in health literacy who with minimal resources and support from social partners have organized people to improve health with what resources are available. Community, health workers have cared for ill people and supported local health issues with minimal support. While we have, with the public sector health system, mobiles teams of our members in 25 districts to support the response to the cholera epidemic and have begun actions at community level, this could be scaled up if these roles were recognized and supported. We, as national membership based civic society, are an essential element in a primary health care oriented rehabilitation of our health system.

We welcome your intervention as World Health Organisation, urge that you intervene in a way that addresses our wider public health crisis, including in our public sector health system, and that you involve us as communities and health civil society in your planning on this.

We look forward to your earliest response

Yours Faithfully

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