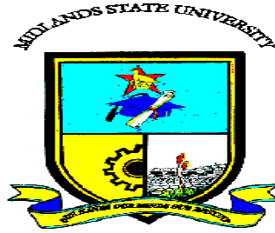


# MIDLANDS STATE UNIVERSITY



**FACULTY OF ARTS**

**DEPARTMENT OF DEVELOPMENT STUDIES**

**SOCIO-ENVIRONMENTAL EFFECTS OF ZVISHAVANE URBAN  
POPULATION GROWTH**

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**A DISSERTATION SUBMITTED TO THE FACULTY OF ARTS IN PARTIAL  
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DEGREE IN DEVELOPMENT STUDIES.**

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**OCTOBER 2017**

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## **DECLARATION**

I Joshua Jumo, declare that the written project is my own work and has not been written for me by any other person(s). My quotations and paraphrase from published and unpublished work from other persons have been acknowledged in this research project.

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## **DEDICATION**

My special dedication goes to my parents Mr and Mrs Jumo, Mr Dick, Mr Chera, Miss Majuru and Mr Chifumuro who have always encouraged me to work hard in this research. Your unwavering support will be greatly appreciated. Your inspirational messages and comfort will be greatly appreciated.

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## **ABSTRACT**

*The research focused on socio-environmental effects of Zvishavane urban population growth. It was done in light of the tragedy of the commons theory by Garrett Hardin, in conjunction with Harris and Todaro rural to urban drift model. The researcher used a quantitative research methodology which included the use of questionnaires for data collection. A case study research design method was used to address aims and objectives of the study. The objectives of the study included factors which influence Zvishavane urban population growth, effects of urban population growth on the socio-environment, challenges faced in mitigating the effects and recommending ways of promoting sustainability .Simple random sampling was used for selecting 200 respondents from the population of 80 000.Microsoft excel was used to analyse data obtained by the questionnaires. It was observed that Zvishavane urban population growth negatively affected the socio-environment by reducing the environmental quality of the area. The increase also added pressure on local authorities such that they faced challenges on meeting the requirements of service delivery resulting in increased pollution, overcrowding in houses and deforestation. Activities such as dumping of waste, deforestation and burning of waste have had a deleterious effect on the socio-environment. Therefore from the study the researcher recommends that strong policies and measures should be aimed at managing the environment as well as promoting environmental sustainability.*

**KEY WORDS: EFFECT, SOCIAL ENVIRONMENT, PHYSICAL ENVIRONMENT, URBANISATION AND SUSTAINABILITY**

## **ABRIVATIONS AND ACRONOMYS**

CBOs	Community Based Organisations
CHRA	Combined Harare Residents Association
CSO	Central Statistics Office
CSR	Cooperate Social Responsibility
EIA	Environmental Impact Assessment
EMA	Environmental Assessment Agency
EPA	Environmental Protection Agency
FDA	Foreign Direct Assessment
GOZ	Government of Zimbabwe
LEAP	Local Environmental Action Plan
MDGs	Millennium Development Goals
RDC	Rural District Council
NPOs	Non –Profit Organisations
RTCP	Regional Town and Country Planning Act
SAPs	Structural Adjustments Programs
TNCs	Trance National Companies
UCA	Urban Council Act
UNEP	United Nations Environmental Program
UNIDO	United Nations International Development Organisation
W.H.O	World Health Organisation



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## **CHAPTER ONE THE PROBLEM AND ITS SETTING**

### **1.0 Introduction**

The idea of urban expansion is viewed as a splendid idea in development circles. However, the rapid increase of urban populations being experienced today have brought about environmental degradation and deterioration concerns which have threatened human life .It is a worldwide clamour that environmental management need to be exercised and save the world from climatic disasters .This is in line with the green development issues that are spearheading debates on environmental sustainability and climatic change (Urban Poverty and Environmental Report, 2000). Urban population increase has often brought about negative effects on the social and physical environment. This research explores various Zvishavane urban environmental management issues. In line with the Millennium Development Goals (MDGs), it also tries to recommend possible ways of promoting environmental sustainability. This chapter will focus on the background of the study, statement of the problem, theoretical framework, conceptual framework, research objectives and questions, justification of the study, delimitation and limitations of the study. The chapter will end with a summary.

### **1.1 Background to the Study**

Southern Africa in the past years has witnessed high rate of rural to urban migration due to some push and pull factors. These massive rural to urban migrations have increased urban populations and as well created imminent challenges. Some of the environmental issues that have affected Southern Africa are water pollution, air pollution, land degradation and deforestation. The environmental damage has affected not only the population's health, but also the species that live in the area as well as contributing to the worldwide issues of climatic change. The research by the United Nations (UN) stated that 30 years from 2006, the world urban population

would have increased by 60% (United Nations Report,2006). It is crystal clear that the population in general is increasing in urban areas and this has presented a lot of challenges to the surrounding physical and social environment. There has been a noticeable urban population growth all over the world as revealed by the table below.

Table 1 Urban Population Growth from 1970 -2020 (%)

Period	1970	1990	2010
Developing Countries	29,4	37,1	53,1
Developed Countries	66,6	73,0	77,2
Africa	22,5	33,9	52,2
World	37,1	45,2	57,4

Source: Madondo et al (2013)

Urbanization has led to the growth of huge cities with some ranging over a million people. Madondo et al (2013) asserts that in 1990 there were around 240 such cities in developed countries, adding more congestion, heavy burden and straining the resources and the environment. Chirisa et al, (2012) asserts that, the increasing population in urban areas have presented a lot of challenges to urban planners, developers and environmentalist. The same views were also cited by Munzwa (2010) who argues that local authorities were now working under pressure due to increasing populations in urban areas which has resulted in increased poverty, inadequate housing, poor service delivery of clean water, poor sewage management, untimely garbage collection and disposal which has resulted in environmental degradation . Although Munzwa (ibid) has differed on population increase, not much has been done to look at the Zvishavane urban population rise.

Zvishavane is one of the oldest mining towns established during the colonial era dated around 1916 according to the Encyclopaedia Zimbabwe (1989). The discovery of asbestos resulted in its establishment though the development process was slow. Zvishavane as has been cited in the Sunday news of (22 November 2015) is surrounded by low rocky hills characterised with red soils (Encyclopaedia 1989). The town started as a residential area for Shabane mine workers and it was around 1982 when it was named Zvishavane. Shabane mine was also one of the biggest producers of asbestos though other minerals like gold, iron and chrome were mined in the area. Encyclopaedia Zimbabwe (1989) also has it that rapid population increase resulted in the need for administration and as a result in 1968 it was granted municipal status, at this time the population was around 26 000. In 2012 its population was 45 230 (2012 Census) and to date the population is around 80 000 as noted by Zimbabwe National Statistics Agency (2016). The table (fig 1) below shows population statistics for Zvishavane.

Table 2 Population statistics for Zvishavane town from 1982-2012 (N.S.A, 2016)

YEAR	POPULATION
1982	26 758
1992	32 984
2002	35 125
2012	45 325
2016	79 876

The increase of population unfortunately came along with the closure of Shabane mine, this deeply impoverished people as most lost their jobs. However, the opening of mines like Mimosa and Sabi operations came as a saviour to the people as some got employed. High unemployment resulted in high levels of prostitution and HIV spreading in Zvishavane (NAC, 2016).

It should be noted that people disagree on how population increase affects the local people with some saying Zvishavane was now a ghost town and the coming in of mine workers and MSU



students has resurrected the community as new people mean new opportunities to improve standards of living. However others state that the coming in of students and mine workers has led to an increase in prostitution with Zvishavane being said to have an increase in HIV ( 16,7%, NAC ,2016) .This study therefore sought to bring to light the above issues. It also seeks to show how Munzwa's argument is applicable to Zvishavane urban ,a small city in Zimbabwe which is also facing effects of population growth which have brought challenges on the physical and social environment .

## **1.2 Statement of the problem**

The idea of urban expansion and development has been viewed as a splendid idea in development circles. However in contrast, the massive influx of people from rural areas and other different parts of the country to Zvishavane urban has resulted in complex and multiplicity of challenges to the socio-environment hence the need for sustainability practises.

## **1.3Theoretical Framework**

According to the oxford dictionary (1911) a theory is a coherent group of tested general propositions that can be used as principles of explanation and prediction of phenomena. On the issue of the relationship between population growth and the socio-environment, a number of theories have been propounded. Chief to note being Tragedy of the Commons theory by Hardin (1968) that states that pollution, degradation and population increase owes much from lack of accountability and responsibility. Hardin contributed to this study as he argues that population growth adds burden to the environment as people pursue profit at the expense of the environment.

Hardin also gave an illustration of a grazing pasture whereby people keep stocking livestock until overgrazing occurs. In this case the issues of family size is another tragedy of the commons leading to overpopulation and overcrowding in houses, which there for helps to explain other underlying issues in Zvishavane urban. The theory further contributed to this study by linking how pollution problems were as a result of population increase. The theory further states that things owned by the majority usually faces mismanagement because no one directly claims ownership, so water pollution and increase of dump sites is another tragedy of the common which comes together with urban population increase. This contributed to the research by helping to explain issues related to pollution problems in Zvishavane urban.

In relation to the above, the model of Harris and Todaro (1970) help to explain aspects like pull factors leading to urban population increase. Harris and Todaro contributed to this study by explaining how migration dynamics can lead to an economic equilibrium. Their other contribution was when they tried to show how much urban areas can be over populated due to rural urban migration a fundamental factor that has seen Zvishavane becoming a harbour of different activities that do not only benefit but destruct the growth. In the light of the model it is argued that people react mainly to the probability of getting a job at the destination and this influences the migration decision. The model also supported that population increase lead to a state of economic equilibrium resulting in high urban unemployment .This contributed to the study by helping to explain social effects like unemployment in Zvishavane urban.

#### **1.4 Conceptual Framework**

The Malthusian (1798) concept of geometrical population growth at the expense of the environment seems to explain the phenomenon of urban population growth. It is from this perspective that the environment reaches a state of equilibrium if urban growth goes unchecked.

There is indeed a close link between urban expansion, degradation and poverty, the more the population increases the more vulnerability of population to poverty. The same factors that pulled people into Zvishavane in reverse are the same factors that will push them if the effects of expansion go unchecked .Continuous exploitation and lack of accountability results in a state of depletion.

Davey (1993) states that the physical environment includes land, air, water, plants, animals, infrastructure, and all of the natural resources that provide basic needs and opportunities for social and economic development. From the above definition the physical environment includes all natural resources that support social and economic development. Barnett and Casper (2001) also state that the social environment includes the culture that the individual was educated or lives in. However the existing environmental situation in Zvishavane seems to owe much from the previous activities.

### **1.5 Research Objectives**

- To show what is influencing Zvishavane urban population growth.
- To assess how Zvishavane urban population growth affected the social and physical environment.
- To asses challenges that might be faced in mitigating socio-environmental effects of Zvishavane urban growth
- To recommend ways of addressing socio-environmental challenges brought about by Zvishavane urban population growth and promote sustainability.

### **1.6 Research Questions**

- What factors have prompted Zvishavane urban population growth?

- What are the social and physical effects that have been brought about by Zvishavane urban population growth?
- What are the challenges that are faced by local authorities in trying to curb socio-environmental effects brought by urban growth in Zvishavane?
- What are some of the sustainability and mitigation measures that can be introduced to address the socio environmental effects of Zvishavane urban growth?

### **1.7 Significance of the Study**

The study will benefit the Zvishavane local authority to come up with appropriate legislations, policies and practises to efficiently and effectively manage the expanding town. The study will recommend sustainable environmental management and stakeholder inclusiveness and participation. The study will provide body of knowledge to development practitioners, politicians, administrators, scholars, legislatures, advocates and policy makers to come up with environmental friendly policies and initiatives which will foster positive development in the country. Other fellow researchers will find literature on environmental and sustainability matters.

### **1.8 Delimitation**

Delimitation is referred to as the boundary of one's research. In this case this research was carried out in Zvishavane urban which is experiencing rapid urban population growth. Zvishavane is a mining town located in the midlands province, Zimbabwe encyclopaedia Zimbabwe (2<sup>nd</sup> Ed, 1989. The encyclopaedia Zimbabwe (ibid) states that, it developed as a residential centre for Shabane mine in 1916. The town is located 97 kilometres west of Masvingo on the main road which links Bulawayo and Masvingo. It is also 121 kilometres on the South of Gweru and 17 kilometres on the North East of Mberengwa. The town also has railway links to Bulawayo, Gweru, Beitbridge, Mozambique and South Africa (encyclopaedia Zimbabwe,

ibid).The boom in Mining activities promoted rapid population growth. In 1968 it was given the municipal status (encyclopaedia Zimbabwe, ibid

The town experienced rapid population growth over the years and in 2012 the population was 45 325 (Census 2012), this increase was further accelerated with the relocation of midlands state university from Gweru which brought about 5000 students and 210 staff members. To date the population is around 80 000 (Zimbabwe National Statistics Agency, 2016). Most people in Zvishavane are engaged in Agricultural activities, mining, gold panning, cross border trading, vending, running small tuck shops and air time selling as a means of their livelihoods. The sampling technique used was random sampling to choose respondents.

### **1.9 Limitations of the study**

The researcher faced some limitations in carrying out the research. The researcher had no adequate time to pay full attention to the demands of the project. The researcher is a full time student who had to split the time to attend full lecturers as well as following up respondents on questionnaires. The researcher also had no finances to fund all the project demand like photocopying, making phone calls appointments, food and vehicle to coordinate research activities. The researcher lacked experience in overall research techniques and approaches since it was the first time for the researcher to carry out a research of this magnitude.

### **Organisation of the study**

**Chapter 1:** This chapter discusses the introduction of study, background of study, statement of the problem, theoretical framework, research objectives and significance of the study.

**Chapter 2:** A review of literatures on the effects of population increase on the physical and social environment was done in this chapter. The chapter focused on the views and arguments of

different authors on population increase and its effects on the physical and social environment. Discussions of relevant concepts, theories and models were done in this chapter. In addition gaps in the existing literature and body of knowledge were exposed in this chapter.

**Chapter 3:** Methods used to obtain data for the research were described in this chapter. Research instruments used to find solutions to the problems were given in this chapter. Of importance, sampling technique was described and the reason why it was chosen was discussed.

**Chapter 4:** This chapter discusses data presentations and analysis of findings.

**Chapter 5:** Conclusions and recommendations drawn from the study findings were discussed in line with statement of the problem.

### **1.10 Chapter summary**

This chapter focussed on back ground of the study, statement of the problem, theoretical framework, conceptual framework, significance of the study, research objectives, research questions, delimitation and limitations of the study, its challenges and its opportunities has been provided. The next, chapter two will focus on Literature Review.

## **CHAPTER 2 LITERATURE REVIEW**

### **2.0 Introduction**

This chapter will define Literature Review and proceed to look at the following concepts: Environmental Sustainability, Urban Population Growth, Urban Growth and the Socio - environment, Environmental Degradation, Effects of Urban Growth on the Physical Environment, Effects of Urban Growth on the Socio – Environment, Impact of Urban Population Growth on the socio-environment, Mitigation Efforts, Environmental Management and Legislation on Environmental Management. The chapter will end up with a summary.

### **2.1 Literature Review**

Kennedy et al (1998) defines literature review as a survey of relevant books, articles and any other sources relevant to an area of study or theory. This includes describing, summarising and evaluating surrounding literature in relation to the problem being researched on. From the above definition the literature review is designed to provide an overview of sources used to explain the case in question.

### **2.2 Environmental Sustainability**

Robert et al (1995) defines environmental sustainability as the preservation of the natural capital. From this definition, environmental sustainability is the ability to exploit the natural resources without compromising future users. UNEP (2000) suggests that environmental sustainability is promoting development that embraces environmental management. This means it can only be achieved by making sound decisions that protects the environment. The earth's resources are finite hence the need to exploit them without compromising the future (UNEP, *ibid*). The need to attain environmental sustainability has found much support all over the world especially with the

climatic challenges being faced today (Sykes, 2008). It is in this context that Sykes (ibid) also suggest that development and environmental sustainability should be treated as parallel matters as this determines the future for all living organisms. This proves how important environmental sustainability is for survival hence the need to be exercised even in Zvishavane urban.

Married to the above, Eleanos (1999) adds that the need for environmental sustainability led to the call for the Rio Earth Summit .This aimed to promote environmental sustainability at local and international level .This was one of the most famous gathering of world leaders on matters of common interest (Eleanos ,ibid). Eleanos (ibid) also states that that the summit resulted in the endorsing of international action program (Agenda 21) which acted as blue print for worldwide actions towards promoting sustainable development. Eleanos (1999) also suggested that sustainable development has three interlinked dimensions, these include economic, social and physical environment .From the above views it is clear that any act of mismanagement impacts negatively sustainability to a greater extent. Failure to promote environmental sustainability entails future climatic challenges as documented by Eleanos (1999) who adds that environmental sustainability is another way of resolving climatic problems. This proves how important promoting environmental sustainability is in both rural and urban development

### **2.3 Urban population growth**

The past decades have witnessed major increases in urban population worldwide. This is supported by Keyfitz (1989) who documented that in only 200 years the population in urban areas had increased from 2% to 50 % of all people in the world, this has resulted in the development of mega cities with 10 million or more people. He also added that in 1975 only four mega cities were in existence, in 2000 there were 18 such cities and in 2015 the UN had estimated that they would reach 22. This increase of urban population resulted from two factors



which are in migration and the fertility of urban population and this was supported by United Nations (2012) which stated that what influenced urban population growth was in migration and the fertility of urban populations. The above information proves that continuous urbanisation may result in overpopulation which causes problems on the socio- environment.

The major cause of urban population growth is in migration, this is in relation to the views of Harris and Todaro (ibid) who state that the rural to urban migration is due to the expectation of getting better opportunities in the receiving end. United Nations (ibid) also stated that urban migration is also driven by the desire to get advantages in urban areas. These include easy access to educational and health facilities, in relation to this the opening of Midlands State University in Zvishavane brought about 5000 students and 210 staff members to the city. In this case UN suggested that the urban poor have less opportunity of these facilities in urban areas but they have a better chance than in rural parts. This proves how in migration promotes urban growth.

Urban fertility is also another cause of urban population growth, in support of this Brockerhoff (1995) added that urban fertility rates contribute to urban growth though the rates are lower than those in rural areas .This was also supported by the National Research Council which stated that in Sub –Saharan Africa the rural fertility rates are 1.5 higher than the urban rates and in America the difference is almost 2 children. This proves that urban fertility though it contribute to a lesser extent it also causes urban population growth.

The above mentioned causes of urban growth have lead to socio-environmental challenges. It is in this view that Hardin (1968) propounded the tragedy of the commons theory which explains why the environment is mismanaged as the population increases .Continuous growth is likely to cause negative effects on the urban environment, these include pollution, deforestation, poor sanitation, improper disposal of rubbish and inadequate water .

## **2.4 Urban growth and the socio- environment**

The impact of population growth has always been a subject of disagreement among economists. Munzwa (2010) documented that the expansion of urban areas was the product of economic and social forces. This view is in line with the fact that urban growth results from pull factors and this has also been supported by the Harris and Todaro (ibid) who also argue that the possibility of getting a job in towns pulls people to urban areas. This is also applicable to Zimbabwe at large whereby mining towns experience rapid increase as people seek to engage in mining activities .This also helps to explain the relationship between population growth and the socio environment even in Zvishavane.

UN (2003) states that the past 25 years have been characterised with major increases in urban population from 50% in 2000 and an estimated 66% in 2030.This also explains the situation in this study as population increase is also being witnessed in local cities. The increase also exerts future pressure on the environment if the situation goes unchecked. Factors like climatic adaption and changes have however necessitated the coming together of environmentalists together in an effort to understand its impact. Bloom and Canning (2006) argue that population increase provides labour to exploit the resources which results in the channelling of profits into environmental management. However this has not been always the case as people seek to make profits at the expense of the environment .The same view was also echoed by Hardin (1968), who says that people seek to maximize profits hence the problem of tragedy of the commons. This also helps to explain why cities experience environmental degradation and Zvishavane had not been spared.

It is of common understanding that the population growth seemed to be adding pressure on the environment and to explain this, Malthus (1798) brought up a hypothesis which seemed to be

applicable even in today's world. He noted that population numbers grew exponentially while food production grew linearly not keeping pace with population seemed to be relevant to this study. This has been so because the more population increased the more it added pressure to the environment. The view had also received support from Hardin (ibid) who states that the more population increases, there more pressure it exerts on the resources resulting in tragedies of the commons. From a social point of view, urban population increases have also resulted in high rates of poverty as the physical environment reaches the state of equilibrium.

In the same vein, most of the mining towns ended up being ghost towns with high levels of land degradation and poverty which is further linked to as well as providing explanations to the socio-environmental effects of urban growth. However contrary to this, studies in the Asian miracle proved that urban population increase came together with improved economy as it provided human capital for development (Young 1995). This view is to lesser extent opposed to the scenario in developing countries which seek development at the expense of the environment. This explains the link between urban population increase and the environment whereby the social and physical environment are not sustainable. This further explains the situation in mining towns for example Zvishavane, Shurugwi and Kwekwe to mention but a few which also experience in migration.

Conversion of forests into urban areas is one of the irreversible acts ever practised by human kind (Seto et al, 2013). This has promoted environmental degradation and Seto (ibid) added that future urbanisation further endangers high value ecosystems. Chief to note was the fact that if these challenges go unchecked they are likely to cause danger on urban dwellers. Kaufman et al (2007) stated that urban growth is likely to affect the global climate at large. This brought about the growing concern on global scales to protect the environment and promote sustainability.

## **2.5 Environmental degradation**

The major cause of environmental damage is human interference. The need for accommodation in urban areas results in environmental degradation. One of the main causes of environmental degradation in urban areas is construction of housing facilities and in relation to this Munzwa (2010) stated that Harare is continuously expanding towards Ruwa in the east and Epworth in the south east. This also explains issues of Zvishavane urban growth leading to the exploitation of nearby forests through deforestation as urban authorities wrestle to create accommodation. Deforestation leads to environmental degradation. However, Frank and Stoops (2002) argue that rural-urban migration reduces pressure on rural land. There for from the above arguments rapid urban growth promotes environmental degradation.

Married to the above, in India as the case in point, a lot of negative results were witnessed as urban population growth occurred (Indian report 2002).The report also documented that India faced accommodation problems in urban areas as population growth spearheaded housing backlogs and this promoted development of slum settlements with a population of 31% of the total population. This increase was witnessed in Indian cites such as Mumbai, Delhi and Kolkata where rapid urbanisation added pressure on local authorities and most of its cities witnessed increased uncalled domestic waste disposal, (Indian report 2002). This was compounded by increased air pollution due to emissions of hydro carbons by cars. The increase of population in Delhi increased car registration also by 30% which was higher than in Mumbai and Kolkata. The report also documented that Indian cities also witnessed high levels of pollution (land, air and water). There for the more urbanisation takes place the more huge quantities of domestic waste are generated hence socio-environmental effects.

Industrialisation is another process that has brought up a lot of challenges in urban areas which even endangers future human life. This is supported by Chifamba (2012) who argues that though industrialization have provided opportunities for millions it has caused environmental degradation, it has caused pollution of air, soil and surface water. In light of the above, Chifamba (2012) added that pollution is the most contributing factor causing environmental degradation and this is so because it introduces toxic materials into the environment that even destroy plant and animal species. This was also supported by EPA (1991) which stated that construction of industries results in increased waste discharges into water resources which are used by urban dwellers. It is in light of this that the Environmental Protection Agency in countries like America documents that industrial discharge is the main contributor to river pollution and this also helps to explain the phenomenon in all urban areas. This proves how industrialisation affects the socio- environment.

More so, increased population also point at increased domestic waste which on the other hand means increased environmental degradation. This is supported by Sprung, (2006) who argue that in India, Mumbai generates highest amount of solid waste (5355 tonnes per day) and this is due to increased population. In addition to this Munzwa (2010) argue that increased population adds pressure on the local authorities resulting in poor service delivery. This means increased air pollution due to burning of domestic waste as people try to improvise. However some scholars are of the view that as development takes place it comes together with improved environmental management techniques and this received support from Walter (1991) who states that United States of American have improved ways of recycling and incineration of wastes due to development. These arguments by scholars also help to explain how rapid population increase affects the socio environment in most urban areas as shown in the study

Environmental management to promote climatic adaptation is one of the major issues that need to be addressed in order to prevent future calamities. Stakeholder engagement will be highly appreciated to promote environmental sustainability. While the world population is increasing by double in size the urban population is said to be tripling, it is from this view that UN (2004) suggested that in a few years more than half of the world's population will be living in urban areas which is likely to cause more problems.

## **2.6 Effects of Urban population Growth on the Physical Environment**

### **2.6.1 Effects on Water bodies.**

Urban growth have been said to be associated with a multiplicity of negative effects on the environment chief to note being increased water pollution. This was supported by UNEP (2008) which states that in USA more than one third of its rivers are polluted due to increased urban population. This was also supported by Environmental Protection Agency (1991) which documented that more than a billion gallons of industrial waste were being deposited daily in surface water. The above views also show how urban growth accelerates river pollution.

More so, City of Harare (2009) documented that the Mukuvisi River is facing high levels of water pollution in the country and this was due to rapid urban population increase which had resulted in dumping of waste in the river. The report also stated that Mukuvisi river had more than 50% of waste in water .To add on, river pollution greatly affects aquatic life which is another physical effect. The physical effect of river pollution comes together with hazards such as cholera outbreak which comes as a social effect this owes back to population increase. This explains how much population increase piles pressure on the physical environment.

### **2.6.2 Effects on Soil.**

Urban population increase has also been said to be another factor which contribute to the changes in soil components. In view of this, Marcotulio et al (2008) says that population increase in urban areas continuously alters the properties of the soil (biological, physical and chemical) and these changes lead to loss of vegetation and excessive water runoff. An increased urban population result in increased infrastructure which does not only affects soil properties but also promotes runoff resulting in river pollution as mentioned above and this was also supported by The U.S Geological Survey (2010) which stated that urban settlements due to population increase expand into nearby forested areas which further affects the soil condition. Marcotulio et al (ibid) adds that urbanisation also leads to landslides which further affects the soil properties. From the above arguments urban population growth alters the soil component which is another negative effect on the physical environment.

### **2.6.3 Effects on Animal Habitat**

Population increase also negatively affects habitats for animals ,this is supported by Environmentalists studies in U.S.A which proved that expansion of cities displaced around 139 amphibian species, 149 mammalian species and 35 bird species (Krausman et al, 2000 pg594).These statistics proves how much the physical environment suffers due to expansion as a result of population increase .More so population increase promotes exploitation of wet lands which results in habitat loss for some species ,this is supported by Mutodi(2009) who stated that exploitation of wetlands compromises their duties of purifying surface water , (they act as kidneys since they both help control water flow and cleanse the system).This therefore proves how vital they are for the health of plant and wildlife as well as humans. Waugh (2010) in this case argued that wetlands are part of the ecosystem and their disturbance means a negative effect

on plant and animal life (including human beings). This also proves how population increase affects the physical environment as it results in exploitation of wetlands and habitat loss.

#### **2.6.4 Effects on natural forests.**

Continuous urbanisation is said to be one of the irreversible act on the environment (Seto et al, 2013), this is so because it alters biosphere and the climate .The need for accommodation in urban areas results in increased deforestation, this even applies to all urban areas. The Environment Assessment Handbook (1991) states that population increase mean more clearing of vegetation in the process of construction of roads, sub stations and other infrastructures. Kaufman et al (2007) state that urban growth leads to direct loss of vegetation biomass which further affect global climate. This also contributes to the knowledge on how increase in urban population continuously promotes deforestation. There for from the above arguments rapid urbanisation promotes deforestation which is a huge negative effect on the environment.

#### **2.6.5 Effects on Air**

Sote et al (2012) argues that in Europe incinerators are well advanced that they don't emit any toxins hence limited pollution. From the above statement urban growth in developed countries brought new technologies to reduce air pollution. However, this is not the case in developing countries as increased urban population has lead to increased air pollution. This view is supported by Haq(2013) who states that industrial activities promotes air pollution which damages the physical environment and all this comes with urban population increase. Chifamba (2012) added that air pollution is the most common and dangerous factor causing environmental degradation as contaminants that are emitted into the atmosphere endangers plant and animal life .In addition to this Holgate(1999), argues that waste management is not the only problem in urban areas but air pollution due to industrial and burning of domestic waste also degrades the



environment .This proves how rapid population growth promotes pollution in developing countries as they lack finance to sponsor advanced incinerators like in Europe as argued by Sote et al (2012) that in Europe incinerators are well advanced that they don't emit any toxins.

### **2.6.6 Effects on Resources**

Young 1995 states that in Asian Tigers exploitation of resources resulted in development, However, Harris and Todaro (1970) argued that rapid rural to urban drift adds pressure on the resources in receiving ends .In relation to this increased urban population results in increased consumption of both food and energy as witnessed in China as the case in question. In view of this, China urban in 1990 consumed more than twice meet than in rural areas, urban residents in China did not only consume much meet but also consumed more durable goods Tylor and Hardee (1990).

More so in China, consumption of coal in towns is three times higher than in rural areas This also pointed at how urban growth pressures the environment as it leads to depletion of natural resources .To add on U.S .Census Bureau stated that in U.S.A there is one car for every two urban dwellers, this also means more energy consumption in urban areas. In support of this the U.S Census Bureau also stated that by 2050 there is an estimation of 5,3 billion cars in the whole world all using energy .However other environmentalists have argued that development results in advanced technologies and changes in consumption . Increased urban population growth worldwide is likely to aggravate resource exploitation despite efficiencies and advanced technologies and this increased exploitation is likely to cause major negative impacts on the environment as mentioned above.

## **2.7 Effects of urban population growth on social environment**

### **2.7.1 Effects on sanitation**

Tylor and Hardee (1990) documented that in Europe urban growth resulted in new technologies like advanced incineration methods which does not affect sanity .However, in developing countries rapid population growth adds pressure on the local authorities resulting in poor service delivery and poor sanitation. Munzwa (2010) argues that population increase also exert pressure on local authorities when it comes to management of the environment. This on the other hand has lead to social hazards due to disposal of hazardous waste in sources of water as well as air pollution as people try to burn domestic waste. This was also echoed by WHO (2006) which stated that disposal of hazardous waste in water resources put the population at risk of diarrhoea and cholera. In addition WHO (ibid) also stated that urban population increase results in increased air pollution which causes respiratory infections .This proves that in developing countries rapid population growth adds pressure on local authorities hence poor services and sanitation.

### **2.7.2 Effects on employment**

The issue of unemployment has been subject to a lot of debate ever since with some scholars saying urban population increase results in high unemployment. On the same debate, Harris and Todaro; (1970) also argue that migratory dynamics drives the economic system towards equilibrium resulting in high urban unemployment. In this case increased population results in increased unemployment rate which is a negative effect on the social environment .On the other hand it also promotes ruralisation of towns as people try to curb poverty which brings about a physical environmental effect (Albania Urban Report, 1991), state that population increase in Tarana resulted in the ruralisation of some of its urban parts.

However studies by Young (1995) in Asian Tigers proved that population increase brought about development and more job opportunities .There for increased population in urban areas like in the case of Tarana socially results in high unemployment and physically results in ruralisation of towns. It appears a fact that most of the social environmental problems are self induced as they result from human activities. Munzwa (ibid) stated that most of the environmental problems are as a result of mismanagement of the environment. It is from this view that the environment suffers most from rapid population increase and the degree of the impact depends on how developed the country is. There for in light of the above rapid population growth in developing countries results in high unemployment hence negatively affecting the socio-environment.

### **2.7.3 Effects on health**

The quality of the environment determines the quality of life in that environment. In view of this, Brockerhoff and Brenan (1998) state that the urban environment is of paramount importance in determining the quality of human health in urban areas. The above mentioned involve (poor sanitation, pollution, lack of water and poor rubbish disposal) promote diseases and all this results from environmental degradation. The health consequences of these environmental problems includes respiratory infections and parasitic infections (Brockerhoff and Brenan ,1998).These are also coupled with higher prices for building of more health facilities in urban areas, as a result the health of urban population become threatened..Brockerhoff and Brenon (ibid) also added that cities with rapid urbanisation often experience high mortality rates than those with lower urban growth. However, W.H.O (2006) argued that urban population growth in countries like USA came together with better health facilities. This is not the case in developing countries as they lack financial strength.

On the other hand urban population growth has seen the rise of HIV prevalence. In light of this mining towns are known for high rates of HIV transmission. In relation to this N.A.C documented that mining towns in Zimbabwe seems to experience more STI transmission. Gordon (2008) claims that high rural to urban migration has also promoted high levels STDs transmission. Gordon (ibid) also added that high unemployment and poverty in urban areas has also promoted prostitution and spreading of HIV. This also proves how urban growth affects health of that particular society.

## **2. 8 Environmental impacts of urban growth**

Seto et al (2011) state that conversion of earth's land surface is an irreversible human impact on the environment .The most dangerous impact of population increase on the socio-environment is environmental degradation. As noted earlier that, the last 50 years the world's population due to the bright light effect the population have been increasing in towns adding pressure and demands on the limited earth's resources (Munowenyu 2000). In line with this, Moyo (1999) argues that rural to urban shift has been accompanied by widespread pollution (land, water and air) and in this case Zvishavane town has not been spared. However some authorities are of the view that population increase brings about development and better conditions as in the case of Asian Tigers where increased population provided labour capital (Young, 1995).

More so, expansion of settlements threatens the physical environment especially the natural environment and this has been supported by (UNEP 2000) which states that population increase threatens the foretasted areas. Population increase in urban areas has resulted in the expansion of settlements into peri-urban for example Chitungwiza is reported to be bursting into Seke communal lands. Harare is continuously developing towards Ruwa in the east and Epworth in the south east (Munzwa 2010). Such urban developments are taking place on the natural

environment which also further compromises the duty of natural environment of carbon sinking. Increase in population means more clearing of vegetation in the process of construction roads, sub stations and other infrastructures (Environment Assessment Handbook, 1991).

The Indian report (2002) stated that urban population increase in India had a multiplicity of impacts on the environment, due to population increase vehicles constantly increased in number since the year 1990 in Delhi. The population increase brought about an increase in emissions of hydro Carbon, carbon monoxide and other suspended particulate matter from motor vehicle emissions and in Delhi the highest total amount was 1046 tons per day. The report also agrees on the fact that air pollution and water pollution were a growing challenge due to the growing population and lack of responsibility .The more the population increases means more pressure on local authorities as a result huge quantities of waste enter rivers.

The report also has it that Mumbai due to increased population has the highest volume of domestic waste in rivers .This has also been witnessed in Harare whereby disposal of waste in Mukuvisi River kept increasing due to population increase (Munzwa).More so car registration also increased in Zimbabwe which also entails increased air pollution due to population increase. However in another dimension, urban growth does not necessarily always cause more effects on the environment, what matters most is how populations behave and this includes their consumption and living patterns .This can also be influenced by legislations passed on protecting the environment, In line with this Latin America and North America (UN, 2004) had the highest urban population but strict legislations protected the environment at large.

## **2. 9 Mitigation efforts**

The growing need to address the issue of climatic changes seems to be having much support worldwide. This was supported by Linden (1996) who stated that since 1950 most of the cities in developed countries have succeeded in curbing urban environmental challenges and Los Angeles managed to reduce air pollution. Linden (ibid) also stated that many towns in developed countries managed to clean up rivers in their locality and the advent of climatic hostility has brought together environmentalist in a bid to curb impending catastrophes like global warming .This is supported by Marshall (1990) cited by Howard (1991) who stated that methods to win support of the public in trying to introduce mitigation measures are changing over time .In view of this Gunter (1989) stated that authorities all over the world have been persuaded to promote reforestation .However the above stated efforts goes a long way to reduce degradation because very few people cares about the environment due to lack of knowledge ,This was also pointed by Hardin (ibid) who stated that environmental degradation results from tragedy of the commons .

More so, incorporation of the community through education on the benefits of environment management is also seen as another mitigation effort. , This has been supported by Walter (1991) who asserted that complications in environmental management and protection often resulted from limited understanding on consequences of environmental degradation. In addition to this, Nkaya and Andreason (2005) asserted that in Tanzania common people were in fact never involved in environmental management issues. In this case failure of some mitigation efforts is due to lack of knowledge. Jonson, (1997), says developed countries have door to door waste collection and this is accompanied by education on environmental issues. This is also supported by Hardin 1968 who stated that incentives and stiff penalties should be introduced to

protect the environment. This is also applicable to my study whereby educating the community can also to reduce environmental degradation.

More so, management strategies like passing of legislations on protecting the environment are also mitigation efforts to promote environmental management, In relation to this WHO (2006) stated the efforts to manage city environment are introduced to save the population from disasters. In relation to this one of the management programmes is Sustainable City Program (SCP), it was formed to promote environmental sustainable growth (UNEP, 2000). This resulted in noticeable success in Dar el Salaam on solid waste management. UNEP (ibid) have also supported local authorities' in introducing environmental management efforts. However some developing countries including Zimbabwe lack enough funding for proper waste management. This proves the relevance of waste management programs in managing the environment in towns and this is applicable to my study as it might also address similar problems.

More over continuous research on environmental issues is also needed to unpack new environment management strategies and this was supported by Gunter (1989) who argues that research is of much importance and is needed on inter dependence between man - made activities and natural resource systems in order to come up with possible solutions. This helps to shade more light on the possible mitigation programs that can be introduced .More so the links between human activities and the environment should be researched on ,for example the link between deforestation on the other hand and its results (soil degradation and erosion ). Gunter (1989) also went on to point that efforts should be made to quantify the impacts at each stage in order to determine the points in the system at which it would be most socially profitable to intervene with policy measures. Gunter (ibid) also argues that programs like reforestation were also encouraged worldwide to protect the environment. This also helped to explain the

importance of research in environmental management, hence the study saved as an eye opener for Zvishavane urban.

Incineration is also another mitigation method that has been brought forward by environmentalists. Zhao et al (2012) stated that in China incineration was advocated for in order to curb land pollution brought by urbanisation. Zhao (ibid) also stated that in Europe incinerators have flue gas cleaning systems to reduce air pollution. This proves the effectiveness of incineration especially the advanced one which does not cause air pollution. However, some environmentalists have argued that the incineration process can liberate dangerous airborne toxins; In relation to this environmentalists have argued that most local authorities have little experience with incineration. Rootes (2009) outlined that in China, Wuhan continues to use old incineration plants that release huge amounts of gas emissions because there are under pressure of disposing excess garbage. Lang (2013) stated that incineration provoked international concern protests against this pollution in China more so waste like plastics are said to be difficult to recycle or incinerate safely.

This therefore proves that mitigation is the best way to curb environmental degradation, joint forces towards this crucial step coupled with research has guaranteed good results. Success stories in Europe prove that mitigation is possible as an effort to save the environment. However, Linden (ibid) argued that mitigation and management of the environment is often hard for developing cities because they have less wealth to devote to management of the environment. Linden (ibid) also argued that mitigation progress might be slow especially in countries with governments which lack efficiency. It is from this fact that urban governance plays a vital role in the mitigation process.



## **2.10 Environmental management**

Climatic changes have called for joint force towards promoting environmental management. The need for sustainable development has resulted in rolling in of stakeholders in an attempt to manage the environment all over the world. In line with this, UNEP (2000) stated that efforts has been made by scientist, administrators planners, technicians, engineers and economists to promote environmental management at global level. To add on, Hardlock(1994) argues that various disciplines such as management engineers and geographers are aimed to see reasons why the industrial firms are not implementing environmental management systems and this is from the view that as urban areas expand, it follows that industries also must grow This part there for seeks to unleash how each stakeholder contributes in environmental management. Impending climatic problems resulted in the need for everyone to fully participate in environmental issues .In the case of Zvishavane joint force between local authorities and local citizens can help curb environmental degradation.

Non profit making organisations are one of the major stakeholders in environmental management and in relation to this Michael (2008) argues that in developed countries the need to manage the environment is increasingly becoming an important concern for Non Profit making Organizations (NPOs). The need to co-operate development with environmental sustainability is increasingly becoming the concern for Non profit making organisations, this is also supported by Michael (ibid) stated that many non profit making organisations are now providing financial support, equipment and personnel to assist environmental interest groups.

Michael (ibid) also stated that in United States of America cooperation between Non profit organisation and companies resulted in progress towards environmental management, to validate this Michael(ibid) also stated that companies such as Home depot and Uniliever agreed to

sponsor and support of environmental management to interested groups .This proves how non profit organisations can help to curb environmental problems brought by population increase .In these case joint forces in Zvishavane urban between local authorities ,non profit organisations and local citizens can also help bring down forces of environmental degradation.

To add on Michael (2008) documented that, in America as case in point collaboration for social responsibility was pursued in a multiplicity of ways, Firstly there was a survey by Boston's College Centre on 255 corporate executives and the result was 89% agreed that corporations would encourage their employees to voluntarily assist in environmental activities. More so, Michael (ibid) stated that 85% agreed that corporations were supposed to sponsor environmental activities and provide skilled personal; this resulted in the engaging of Home depot and Uniliever in supporting environmental management to interested groups. This proves how cooperation promoted environmental management in U.S.A and this can be applicable even locally whereby companies can be engaged in programs of sustainable development.

Married to the above Hardlock (1994) states that other stakeholders such Transnational Corporations (TNCs) and Non-Governmental Organizations (NGOs) have played a vital role in environmental management .These roles include provision of funding, knowledge and leadership, in relation to this UNIDO and UNCTAD (2000) documented that organisations like UNEP and the World Bank have focused on funding and provision of resources to promote environmental management. NGOs have also played a vital role in convincing transnational companies into being savers not exploiters of the environment, also Wad and Jefferson (2006) added that UNEP has championed for programs like National Cleaner Production Centres, as a result TNCs have shifted from being the exploiters of developing countries to being savers of the environment. In this case incorporation of other stake holders in local cities can also bring about

a change; this should include cooperation with local citizens to discourage environmental degradation.

## **2. 11 Legislations on environmental management**

The growing concern for environmental sustainability has resulted in formation of organisations and passing of different legislations towards environmental management (UNEP, 1988). This is supported by World Bank (2008) which documented that the Environmental Impact and Assessment (EIA) during the past two decades has played management role to improve transparency in managing the environment in developing countries. UNEP (1988) stated that in 1988 the world bank and UNEP proposed and recommended that EIA should be treated as a larger body with financial support and supervision. However, the existence of EIA guidelines and legislations did not reduce the pollution problem (Mage, 1996). In this case (Environmental Management Act) seems to be facing huge challenges in trying to curb environmental degradation in locally and internationally.

Moreover, legislations were also passed on how local authorities should operate; these include Rural District Councils Act of 1996, Communal Lands Act, Urban Councils Act, Environmental Management Act (EMA) and Forestry Commission Act. All of the above mentioned special sections were introduced to prevent the environment from any harmful activities. There was also Rural District Councils Act which empowers Rural Local Authority to make by-laws that protect against water pollution, proper management of sewer disposal, refuse removal and protection of vegetation at large. (RDC Act revised 1996).

To add on there was also the Communal Land Act which outlines the importance of local authorities in management of communally owned resources with the aid of traditional leaders.

However though these legislations were passed environmental degradation is still occurring, in relation to this World Bank (2008) argued that the issue of environmental degradation is still a challenge in developing countries. This therefore proves how urban population growth has impacted the socio-environment as it has affected negatively implementation of environmental legislations

## **2.14 Summary**

The literature review unleashed various literature documents by different scholars on urban growth and its effects on the environment .The researcher began by defining literature review and environmental sustainability. He also looked at factors leading to urban population growth, environmental sustainability, the link between urban growth and the environment, effects of urban growth on the social and physical environment .The researcher also highlighted human activities that affect the environment as well as possible solutions to those problems brought by urban growth. The literature review also looked at different case studies on the issues relating to urban growth and its effects on the socio-environment. The researcher also managed to look at roles of different stake holders and challenges they face in managing urban environment .Lastly the study also looked at different legislations passed in promoting environment management.

## **CHAPTER 3 .RESEARCH METHODOLOGY**

### **3.0 Introduction**

Borg and Gall (1989) define research as an organised way of inquiry to predict, describe, explain and control an observed phenomenon. Mikkelson (2004) says that research is all about providing enough information and unearthing answers to questions through investigation. This chapter will focus on the following research concepts: quantitative methodology, research design, population, sampling, pre-testing, validity and reliability, research instruments and procedure for data analysis. It chapter will end with a summary.

### **3.1 Research methodology**

Kothari (2003), states that the reason behind the research methodology is to provide evidence on how the research was done. He also added that it is of paramount importance to have a plan pertaining to the sources of information to use in answering research questions. Haralambos and Halbon (1995), advance that the methodology concentrates on the detailed study in which data is extracted from the case study. Bell (1993) added that a research methodology is the means by which information is extracted from the research project. From these definitions and point of views, we can deduce that a research methodology is concerned about providing evidence and answering research questions. There are two distinct research methodologies which are quantitative and qualitative and in this study, the researcher is going to employ quantitative research methodology

### **3.2 Quantitative Research Methodology**

Burns and Grove (2005), define quantitative research as the systematic process in which numerical data is used to obtain information about a phenomenon. This research methodology

was chosen because it provides accurate data, allows a summary of information and comparisons across categories (Kruger, 2003) and it also avoids personal bias by researchers by keeping distance from researchers. The researcher also used quantitative research methodology because it helped to obtain quantifiable information that helped to answer research questions.

Quantitative methodology was also chosen because it helped to present data in numerical form which is easy to analyse through use of statistics. This research methodology was also chosen because it helped to describe and test relationships between Zvishavane urban population growth and the socio environment. Chief to note is the fact that quantitative research methodology is centred on examining cause and affects of relationships hence its applicability to the study. However, though it does not allow too much wording, it makes it easier to make comparisons and assess the impact. Hence the reason why the researcher chose it since he is investigating a case that needs an overall assessment.

### **3.3 Research Design**

Hausmann (1996) cited by Maoneni (2014) states that a research design is a predetermined plan on how you choose to integrate the different components of a research in a coherent way which addresses all aims and objectives of the study. This is also supported by Strauss (1995) who states that a research design is a plan that an individual sticks to in order to meet the objectives of the research. In actual fact it acts as a blue print of a study as it governs data collection and analysis. Yin (1984, p. 23), suggest the six techniques for organising and conducting the case study research design successfully. The techniques are as follows; determine and define the research questions, select the cases and determine data gathering and analysis techniques, prepare to collect the data, collect data in the field, evaluate and analyse data and prepare the report.

The research object in this case study design were a group of people. The researcher investigated the group of people by administering questionnaires to produce evidence that lead to the understanding of the socio environmental effects of Zvishavane urban growth which helped to answer the research questions. The questions were targeted to a limited number of people who represented the whole Zvishavane urban dwellers and their inter-relationship. In targeting and formulating the questions, the researcher conducted a literature review .This review established how other researchers have been previously conducted leading to refined, insightful, methods and questions used in the study. The literature review helped to define the purpose of the case study, determine the potential audience, how the study will be designed as well as guiding compilation of the final report. To ensure uniformity and consistency, the researcher administered questionnaires to capture data, facts, opinions and insights about the socio environmental effects of Zvishavane urban growth.

The researcher prepared to collect data by first contacting each of the relevant organizations (city council and EMA) to gain their cooperation, explain the purpose of the study and to assemble key contact information. The researcher obtained approval to administer questionnaires. A total of 200 questionnaires were administered to a sample that was randomly selected. A total of 197 questioners were responded to while the other 3 were spoiled. On the first analysis technique, the researcher studied each individual's questionnaire response separately to identify unique patterns within the data collected. To make a comparison, the researcher had to do a cross-case analysis. The researcher examined pairs of responses, categorizing the similarities and differences in each pair. The researcher then examined similar pairs for differences and dissimilar pairs for similarities. As patterns began to emerge, certain evidence emerged out as being in conflict with the patterns. In those cases, the researcher conducted follow-up focused on correcting the initial

data in order to tie the evidence to the findings and to state relationships in answer to the research questions.

### **3.3 Sampling**

Francis (2012) stated that sampling is a process whereby a researcher chooses his or her sample. Field (2005) defines a sample as a smaller collection of units from a population to determine truths about that whole population. In support of this Jeanings et al (2001) suggest that sampling is selecting a smaller fraction of the elements of a population that represents the larger population in a phenomenon. Hall (1998) also adds that sampling is the process of selecting a smaller proportion that represents the entire population. From the above definitions sampling is the process of choosing or selecting a smaller fraction that is suitable to represent the entire population in a phenomenon. Since sampling is a process Hall (ibid) outlines the basic steps to follow when selecting a good sample. These include identifying a population, specifying a sampling frame, specifying a sampling method, determining the sample size and data collection. The researcher followed the above mentioned basic steps to come up with a suitable sample and these are explained below.

#### **3.3.1 Study population**

The study population in this research is every Zvishavane resident because that is who the researcher is interested in. Ben and Khen (1993) stated that a study population is a group of people who have one or more characteristics and have interests to the research. There for a study population is made up of people who have common interests about the research and were used by the researcher to extract data to achieve desired results. In this case the researcher will explain briefly about the study population. Zvishavane is a mining town located in the midlands province. It has an estimated population of about 80 000 people (Zvishavane Town Council).



The town developed as a residential centre for Shabane mine in 1916. The population composition of Zvishavane urban is estimatedly 40 060 females and 39 940 males. The town experienced rapid population growth over the years and in 2012 the population was 45 325 (Census 2012), this increase was further accelerated by the relocation of midlands state university from Gweru to Zvishavane. This brought estimatedly about 5000 students and 210 staff members. Most people in Zvishavane are engaged in Agricultural activities, mining, gold panning, cross border trading, vending, running small tuck shops and air time selling as a means of their livelihoods as observed by the researcher. It is from this background that the researcher used simple random sampling to select a sample of 200 to represent the overall population using questionnaires for data collection.

### **3.3.2 Sampling frame**

Brookes (ibid), defines a sampling frame as a list of everything the research is aimed to study on. In this study on socio-environmental effects of Zvishavane urban population growth, the researcher aimed at unearthing socio-environment effects of urban growth witnessed by all Zvishavane residence. This study targets to collect data from residents on how Zvishavane urban growth affects the socio environment in terms of sanity, health, employment, culture, access to facilities and the physical environment in terms of soil, air and water .This data was collected using questionnaires .

### **3.3.3 Sampling method**

Field (ibid) defines sampling method as a procedure for selecting sample members from a population. From this definition sampling method is a (modus operandi) for choosing sample members. There are two types of sampling methods probability sampling and non probability sampling .In this case the researcher used simple random sampling (probability sampling) to

select respondents for data collection on socio-environmental effects of Zvishavane urban population growth. The researcher then distributed 200 questionnaires to respondents selected through simple random sampling .Of the 200 respondents 10 were council employees. The questionnaire return was 197 out of 200 the other 3 were spoiled. This sampling method was chosen because it avoids bias by the researcher as well as the respondent which helped to collect raw data which is not altered. Simple random sampling also gave everyone a chance to be chosen hence ensuring a balanced research with enough data .Gay (1987) added that simple random sampling is the best single way to obtain sample members from a population.

### **3.3.4 Sample size**

Evans et al (2000) defines sample size as the act of determining number of respondents or observations in a sample. In this study the sample size was 200 respondents who were used for data collection through questionnaires .Gerad (2003) cited by Maoneni (2014) argues that there is no universal formula for calculating the size of a sample. The above respondents were chosen through simple random sampling.

### **3.4 Data Collection Tools**

The oxford dictionary (1911), define data collection as a process of collecting facts and statistics for reference or analysis. From this definition above, data collection in simple terms is the process of gathering information needed for the study. This data should be raw which means it should be collected straight from the field. Inns (1983) suggest that primary data is the data collected to solve the problem at hand at that particular time. This includes raw data that has not been published before which means its straight from the field. Inns (1983) termed it fresh data. In this study primary data was needed since it helped the researcher to obtain the correct information in relation to the problem. In this study questionnaires were used as instruments of

data collection .The questionnaire consisted of standardized questions in relation to the research topic and objectives.

### **3.4.1 Pre-testing**

Weisberg et al (1989) states that pre-testing is where a questionnaire is tested at small sample in order to identify the strengths and weaknesses. Taking it from the above definition pre-testing is the act of measuring validity and reliability of a questionnaire in collecting required data. Weisberg et al (ibid) also adds that a pre-test is done to measure validity and reliability of a research tool. Presser (1986) suggests that it is important to run a pre-test even more than twice if possible to make sure the final questionnaire produces satisfactory data. The researcher conducted a pres-test on 10 people to ensure validity and reliability of the questionnaires distributed. After measuring validity and reliability the researcher then distributed the questionnaires to 200 respondents.

### **3.4.1 Questionnaires**

Inns (1983) defined a questionnaire as a set of questions designed to extract information over a certain subject. In addition to this Foddy (1994) suggests that questionnaires contain a series of questions that helps the researcher to unearth information from the respondent .From the above definitions it is clear that a questionnaire is group of relevant questions meant to draw out information about a particular subject from an informant. Francis (2012) recommends that questionnaires are the best when it comes to data collection. He also added that questionnaires are good methods of data collection when there is a need for a particular class of people to be questioned. It is from this view by Francis (ibid) that the researcher decided to use questionnaires. The researcher investigated the group of people by administering questionnaires

to produce evidence that lead to the understanding of the socio environmental effects of Zvishavane urban growth which helped to answer the research questions.

The questions were targeted to selected respondents who represented the whole Zvishavane urban dwellers and their inter-relationship. In targeting and formulating the questions, the researcher conducted a literature review .This review established how other researchers have been previously conducted leading to refined, insightful, methods and questions used in the study. To ensure uniformity and consistency, the researcher administered questionnaires to capture data, facts, opinions and insights about the socio environmental effects of Zvishavane urban growth. The researcher made use of closed ended questions in the data collection process. This data included socio-environmental effects caused by Zvishavane urban population increase, cost of this increase on the environment, years when major population increase occurred in Zvishavane urban, efforts by local authorities in trying to curb the population problems , efforts being made in trying to curb environment environmental degradation and challenges that are faced in trying to reduce environmental degradation.

The researcher chose to use questionnaires for data collection because of the following reasons; they were a quicker way of data collection since the study area was large, they helped to obtain enough information in a short space of time ,they provided data according to the respondents' direct account to the situation on ground and they made it easier to pass a judgement in relation to the views by individuals on the phenomenon .The researcher distributed 200 questionnaires in Zvishavane urban to the respondents selected through random sampling .

To conduct the questionnaires the researcher got a student confirmation letter from Midlands State University which confirmed that the student was carrying out a research. All necessary

protocols were observed before collecting data from local citizens. The student sought permission from the town clerk of Zvishavane Municipality. More so, the researcher observed the rights and integrity of research participants during the study. To add on, the researcher also maintained a balance of interest between him and the research participants. More over before conducting a questionnaire the researcher also guaranteed confidentiality and privacy to the respondents during the research. Last but not least the research also made it clear to the respondents that they had the right to willingly participate or withdraw if necessary during data collection. However, of the 200 questionnaires distributed 3 were misplaced by the respondents so the researcher used data from 197 respondents.

### **3.5 Procedure for Data Analysis**

.In relation to this Tukey (1961) defined data analysis as steps or procedures used to analyse data. Francis (ibid) also stated that this process of analyzing data depends on the methodology or techniques that were used to collect data. This is so because the methods and techniques used also determines how data is analyzed. The analysis of data in this study was done within the quantitative approach which included numerical and descriptive analysis of data. Ader (2008) suggests a number of steps that are involved in analysing quantitative data. These include data cleaning, data coding, data presentation, data interpretation and discussion. In this research the researcher deed data cleaning which included removal of unclear elements.

The researcher also coded the data by assigning symbols and numerals to answers so that in order to put responses into a limited number of categories. Rossman et al, (1998) stated that coding is the process of transforming data into a form which can be understood by a computer software. More so, for data presentation the researcher used tables and figures to summarize coded data and this was done using Microsoft Excel. This was supported by Coolican (1994)

who suggest various applications that helps in data coding and analysis and these include MS Excel and SPSS (Software Package for Social Science). The researcher then proceeded into data interpretation and discussion. This was done based on the key findings of the study in relation to the relevant literature.

### **3.6 Chapter Summary**

This chapter discussed the following research concepts: quantitative methodology, research design, population, sampling, pre-testing, validity and reliability, research instruments and procedure for data analysis. This was done under the realm of research methodology.

## CHAPTER 4 .DATA ANALYSIS, PRESENTATION AND DISCUSSION

### 4.0 Introduction

This chapter circles much on findings of the research and it contains a detailed analysis and presentation of data collected. This chapter will provide the results on socio-environmental effects of Zvishavane urban growth according to the answers provided by the respondents. It will also look at the effectiveness of the local council and EMA in managing the socio-environment in Zvishavane urban growth. .This chapter will also include data analysis, interpretation and presentation in form of graphs and tables. The chapter will end with a summary.

### 4.1 Background of respondents (section A of the questionnaire)

A sample of 200 people was used for study; however, only 197 people responded back and the other 3 questionnaires were misplaced by the respondents. Amongst the respondents 10 were council employees. This sample size was 200 as argued by Gay (1987) who stated that there is no universal formula for calculating sample size, however the larger the sample determines reliability of data collected. The equations below were used to work out standard deviation, mean, median, mode and variance.

$$\text{Standard deviation} = \sqrt{\left(\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2\right)}$$

$$\text{Mean} = \frac{x_1+x_2+x_3+x_4+x_5}{n}$$

$$\text{Median} = \frac{n+1}{2}$$

$$\text{Variance} = \frac{\sum x^2}{N} - \left(\frac{\sum x}{N}\right)^2$$

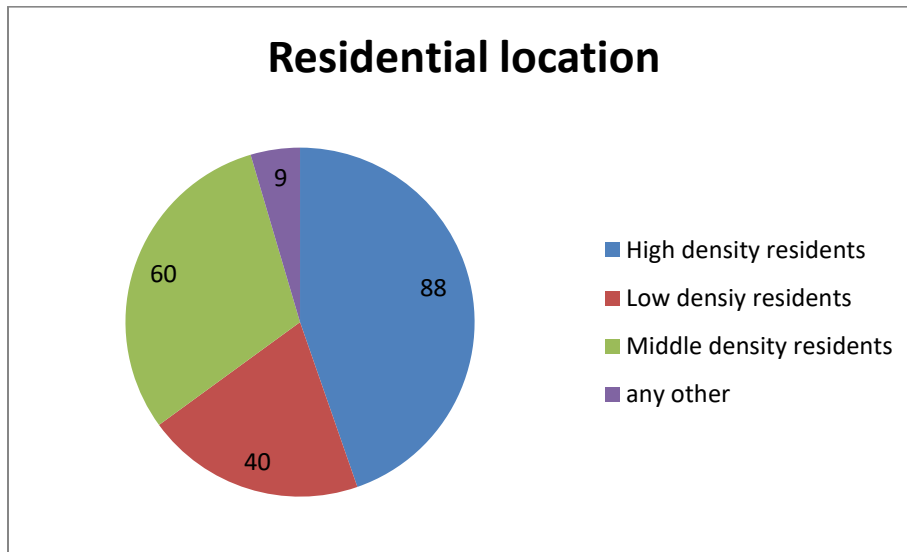
### 4.1.1 Response rate

The response rate was 98, 5 % with 120 females and 77 males. The research proved that females respond more to surveys than males, in relation to this Kwak and Radler (2002) state that women respond more to surveys than males. This scenario was also witnessed by the researcher.

Table 3 shows residential location of respondents

Location	Respondents
High density	88
Low density	40
Middle density	60
Any other	9

Fig 1 shows residential location for respondents.



a) SD = 28.82 b) Mean = 49.25 c) Median =50 d) Variance =830.6875

The above data proves that the highest percentage of Zvishavane urban population is located in high density suburbs. These are characterised with poor living conditions as shown by the data collected. In support of this U.N HABITAT (2006) stated that in Africa more than 80% of urban population in lives in high density suburbs and that is where 75% of urban growth

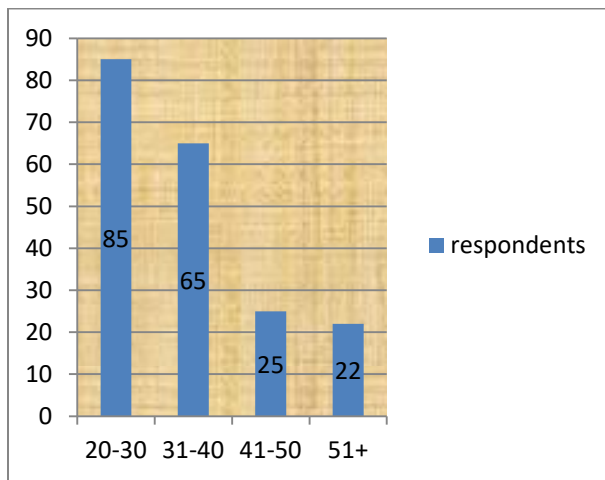


occurs. High density is followed by middle density and lastly low density in terms of population distribution in Zvishavane.

Table 4 below shows Age distribution of respondents

Age range	Respondents
20- 30	85
31- 40	65
41- 50	25
50 +	22

Fig 2 below shows age distribution of respondents



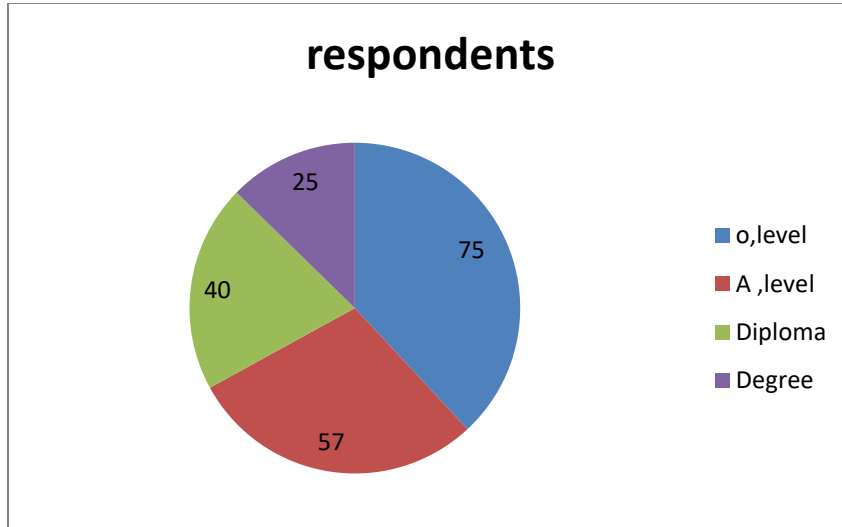
A) SD =26.72 b) Mean = 49.25 c) Median =45 d) Variance = 714.1875

The age range of 20 to 40 years participate more in researches because there are the most mobile once .The data collected proved that the age range of 40 to 51 are hard to reach usually due to occupational and personal matters. Maclean (2006) states the young aged in developing countries are unemployed and are the most mobile in urban areas. The data collected also proved that.

Table 5 below shows educational level of respondents

Educational level	Response
O level	75
A 'level	57
Diploma	40
Degree	25

Fig 3 below shows educational level of respondents



A) SD = 18.69 b) Mean = 49.25 c) Median = 48.5 d) Variance =349.1875

The data collected proved that most of the respondents had O level however the number reduced as the education level increase. Moyo (2014) asserted that the majority in urban areas reached ordinary level.

#### 4.2 Findings and Discussions

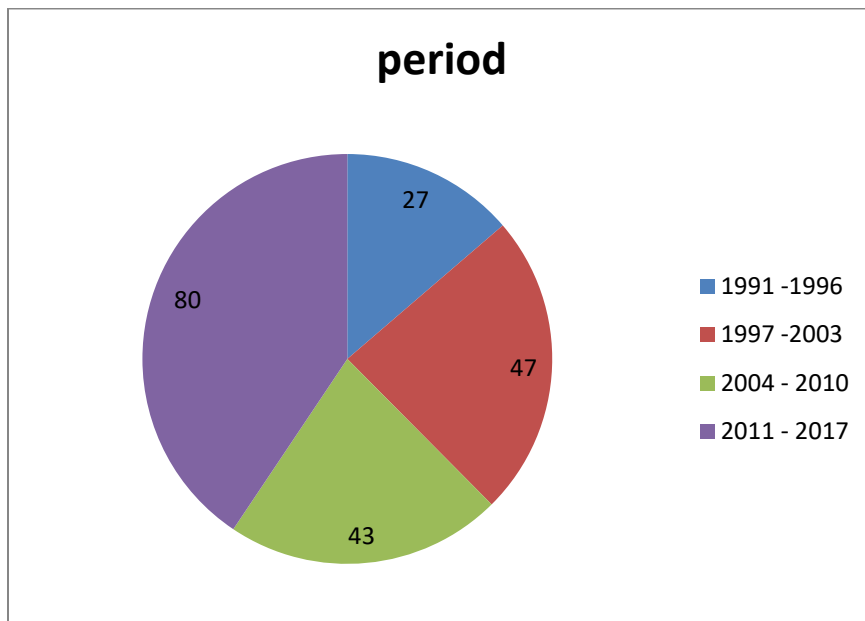
Over the past years, Zvishavane witnessed major population increase as evidenced by data collected .This had a multiplicity of effects on the socio environment as discussed below.

**4.2 Objective 1: factors that prompted Zvishavane urban population growth.**

Table 6 below shows period when major population increase was witnessed in Zvishavane urban.

Year (when major increase was witnessed)	Responses
1991-1996	27
1997-2003	47
2004-2010	43
2011-2017	80

Fig 4 below shows responses in relation to the period when major increase was witnessed.



a) SD = 19.27 b) Mean = 49.25 c) Median = 45 d) Variance =371.1875

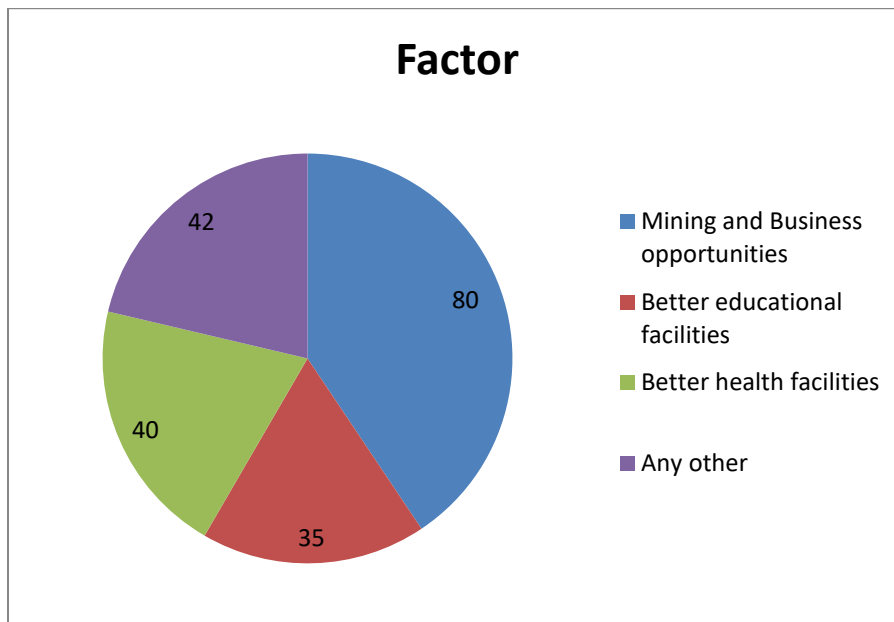
The data collected proved that the period 2011- 2017 witnessed highest population increase .The driving factors includes opening of Midlands University Campus in 2015 which brought around 5000 students .Data collected also proved that more business opportunities and mining activities had a contribution to this increase. The period 1991 to 2010 had lower figures due to the fact that there was no university in Zvishavane urban at the time, so the coming of Midlands State

University resurrected the town to some extent. Harris and Todaro (ibid) adds that better living conditions in urban areas like better access to education and employment results in immigration of people into urban areas.

Table 7: below shows responses in relation to factors that influenced Zvishavane urban population growth.

Factor	responses
Mining activities and business opportunities	80
Better access to educational facilities	35
Better access to health facilities	40
Any other factor	42

Fig 5 below shows responses in relation to factors that promoted Zvishavane urban growth



a) SD =17.94    b) Mean = 49.25    c) Median = 37.5    d) Variance =321.6875

Mining and business opportunities seem to have contributed much to Zvishavane urban population increase. The encyclopaedia Zimbabwe (1989) has it that Zvishavane urban is a mining town which developed as a residential area for Shabane mine workers. This proves how mining influences Zvishavane urban population growth. Other factors like educational facilities

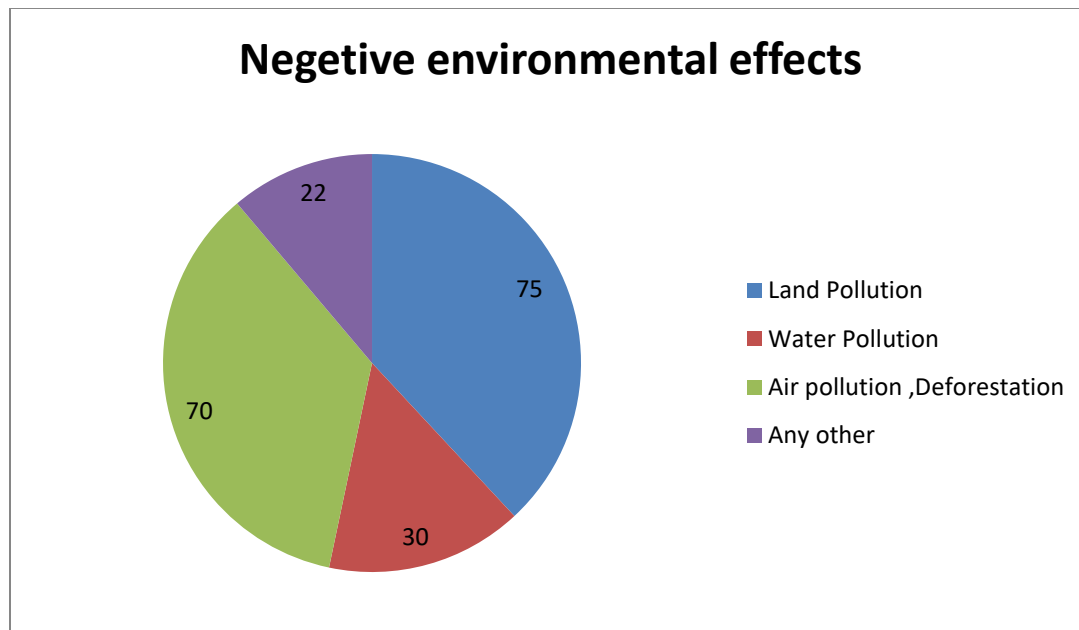
like coming of Midlands State University and better access to health facilities had a part to play to some extent.

### 4.3 Objective 2: social and physical environmental effects caused by Zvishavane urban population growth.

Table: 8 below show responses in relation to negative environmental effects of Zvishavane urban population growth.

Negative environmental effect	Responses
Land pollution	75
Water pollution	30
Air pollution, deforestation	70
Any other	22

Fig 6: below shows responses in relation to negative environmental effects of Zvishavane urban growth.



a) SD =23.49 b) Mean = 49.25 c) Median = 50 d) Variance = 551.6875

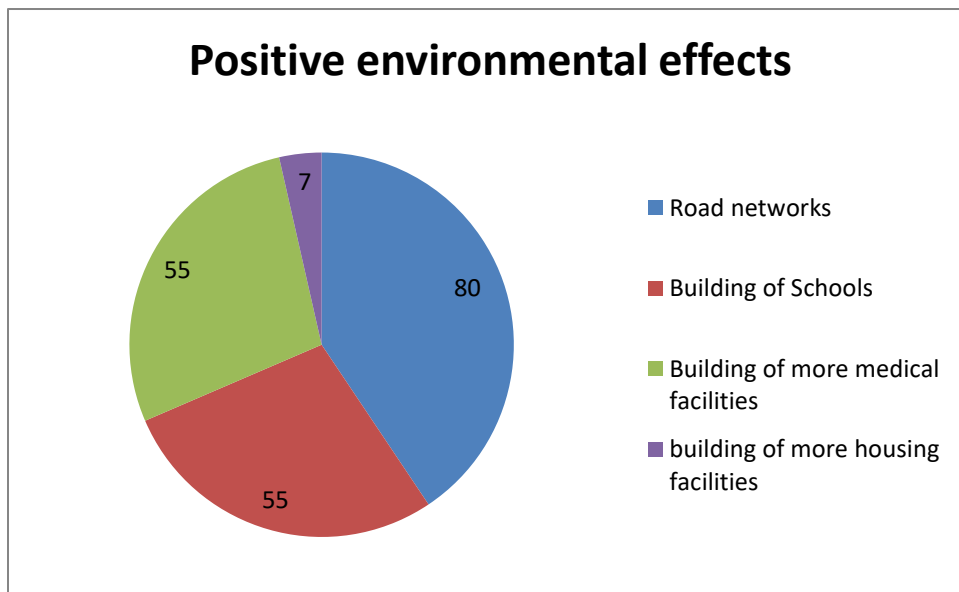
Land pollution, air pollution and deforestation seem to be the highest negative environmental effects caused by urban population growth in Zvishavane. Water pollution is also another challenge witnessed in Zvishavane urban. The main causes of pollution are burning of domestic

waste, dumping, sewage bursts and use of firewood. In relation to this Munzwa (ibid) adds that urban growth pressures the local authorities resulting in poor service delivery hence increased pollutions.

Table : 8 below shows responses in relation to positive environmental effects of Zvishavane urban population growth.

Positive environmental effect	responses
Road networks	80
Building of more schools	55
Building of more medical facilities and housing facilities	55
Any other	7

Fig 7: below shows responses in relation to positive environmental effects of Zvishavane urban population growth.



a) SD =26.44 b) Mean = 49.25 c) Mode = 55 d) Median = 55 e) Variance =699.1875

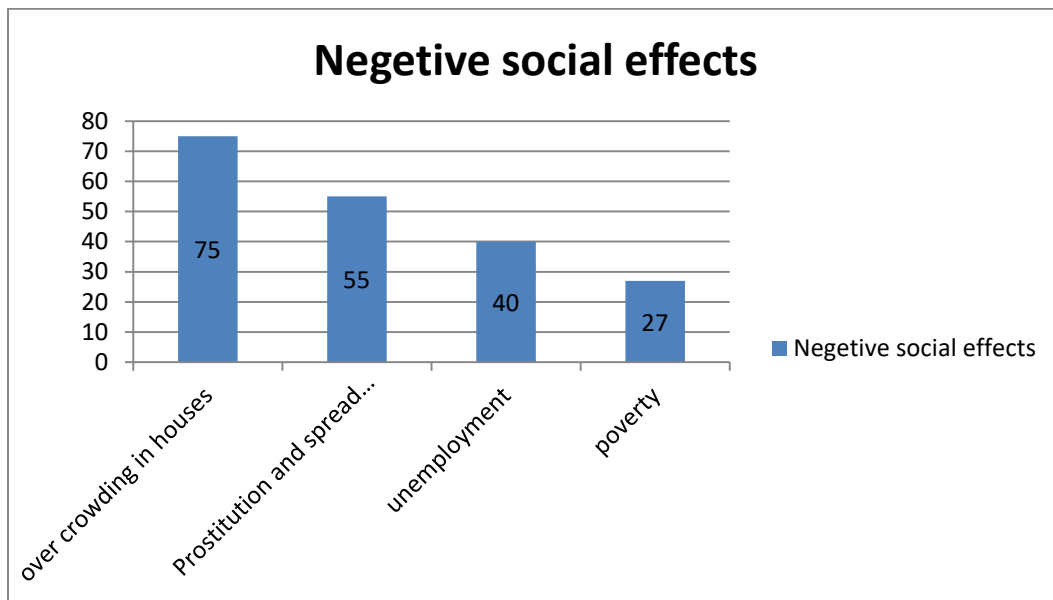
Road net works, construction of more schools and more medical facilities seems to be the top positive environmental effects witnessed in Zvishavane urban due to population increase. However, housing facilities seems to be lower though an increase was observed. Young (ibid) documented that urban growth in the Asian tigers came together with development of road

networks, more schools and more medical facilities. However, Munzwa et al (2009) argued that urban pressures local authorities to an extent of failing to supply adequate housing .The above data proves how Zvishavane urban growth affected positively the physical environment to some extent.

Table 10 below shows responses in relation to negative social effects brought about by Zvishavane urban population growth.

Negative social effect	Responses
Overcrowding in houses	75
Prostitution	55
unemployment	40
Poverty	27

Fig 8: below shows responses in relation to negative social effects brought about by Zvishavane urban population growth.



SD =17.87    b) Mean =49.25    c) Median =47.5    d) Variance =319.1874

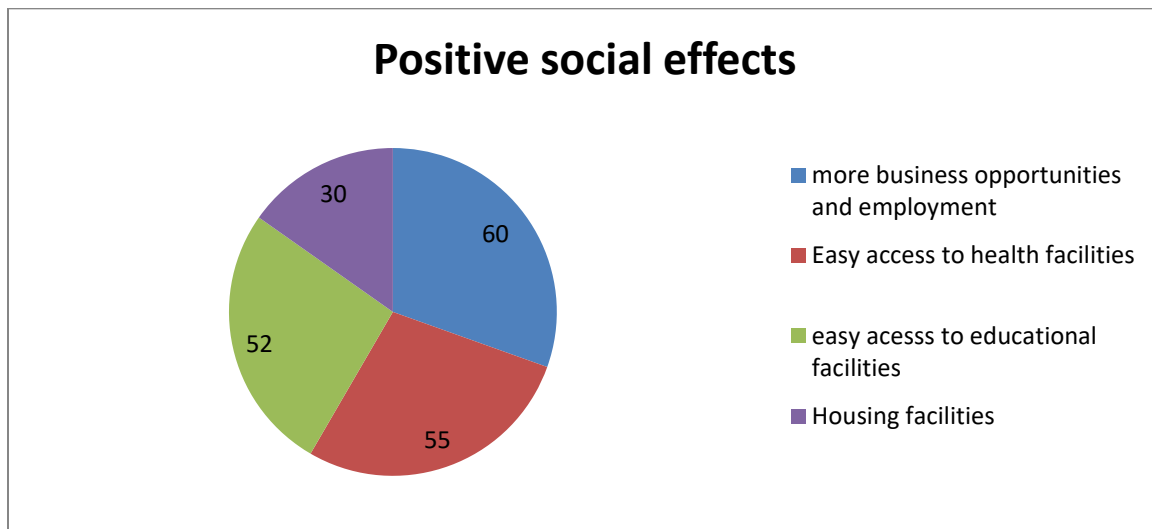
Overcrowding seems to be the top negative social effect of Zvishavane urban population growth. This is in relation to the argument by Zinyama et al (1998) that population changes in most African countries have resulted in overcrowding due to lack of housing facilities. This has been

followed with increased prostitution and spread of STIs as shown on the graph, in relation to this NAC (2009) documented that increased population in mining towns has resulted in increased prostitution ,spread of STIs and poverty. Urban population growth in Zvishavane also promoted unemployment, in relation to this Harris and Todaro (ibid) argued that high rural to urban migration leads to an economic equilibrium with high unemployment and poverty.

Table 11: below shows responses in relation to positive social effects brought about by Zvishavane urban population growth

Positive social effect	Responses
Increased business opportunities & employment creation	60
Easy access to health facilities	55
Easy access to educational facilities	52
Housing facilities	30

Fig 9: below shows responses in relation to positive social effects brought about by Zvishavane urban population growth.



SD = 28.84    b) Mean = 49.25    c) Median =53.5    d) Variance =831.6875

The above data proves that Zvishavane urban growth had some positive social effects to some extent. The top social effects include more business opportunities and employment creation .This

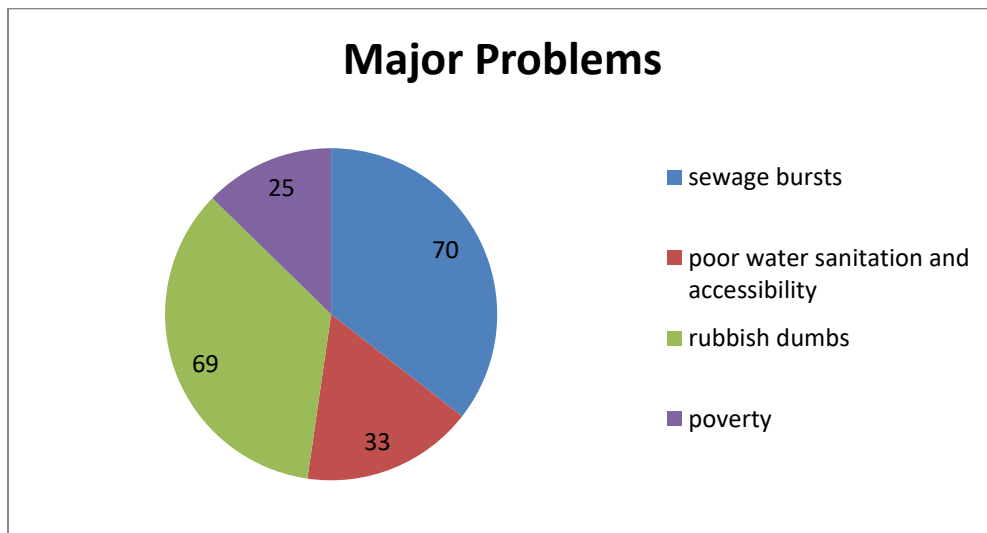


was followed with more health and educational facilities as presented above. Young (1995) documented that in Asian tigers population growth provided labour for resource exploitation resulting in economic development in terms of business opportunities and infrastructural development. However, housing facilities seems to be lower .In relation to this Zinyama et al (1998) state that urban growth in developing countries results in housing problems. This seems to be applicable in Zvishavane urban to some extent since urban growth brought some social developments

Table 12 shows responses in relation to major problems brought about by Zvishavane urban population growth.

Major problems	responses
sewage bursts	70
Poor water sanitation and accessibility	33
Rubbish dumps	69
Poverty	25

Fig 10: below shows responses in relation to major problems brought about by Zvishavane urban population growth.



SD = 20.45    b) Mean = 49.25    c) Median =51    d) Variance =418.1875

Sewage bursts and Rubbish dumps seem to be the top major problems brought by Zvishavane urban population growth according to the graph above. In this case Munzwa (ibid) asserts that urban population growth in developing countries exerts pressure on the authorities resulting in poor service delivery.

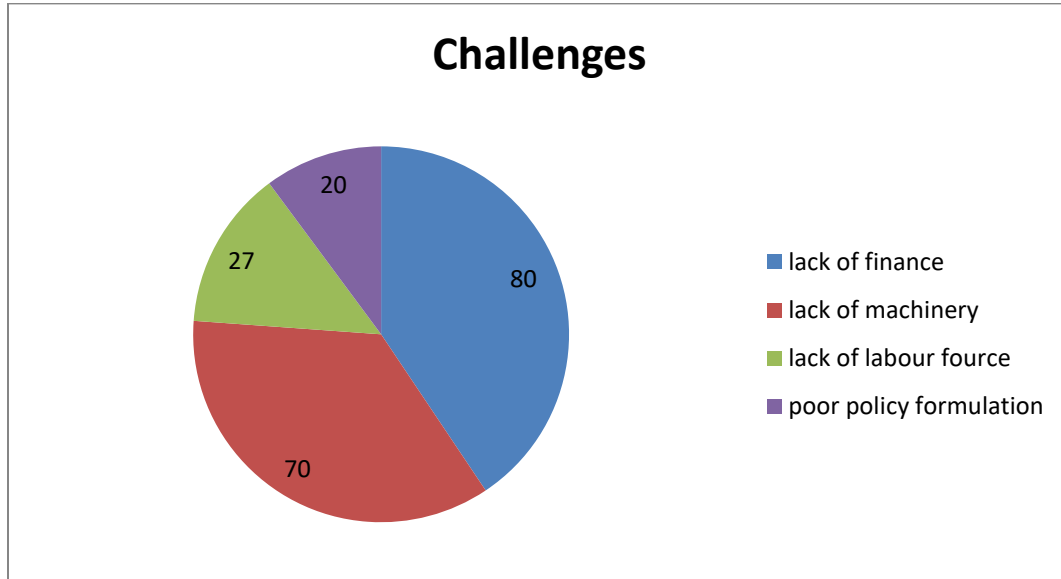
This seems to be the case in Zvishavane urban where local authorities seems to be doing very little to manage sewage burst and rubbish dumps. Poor water sanitation seems to be another problem in Zvishavane urban. In relation to this Bloc (1999) documented that urban areas in developing countries are characterised with poor water sanitation and general lack of water accessibility. Mubaya (2011) asserted that urban cities in developing countries are characterised with poverty .This is the case with Zvishavane urban as evidenced by data collected.

**4.4Objective 3; what are the challenges that are faced by local authorities in trying to curb socio-environmental effects brought by urban growth in Zvishavane?**

Table 12; below shows responses in relation to challenges that are faced by local authorities in managing the socio-environment.

<b>Challenges</b>	<b>responses</b>
Lack of finance	80
Lack of machinery	70
Lack of labour force	27
Poor policy formulation	20

Fig 11 below shows responses on challenges that are faced by local authorities in managing the socio-environment.



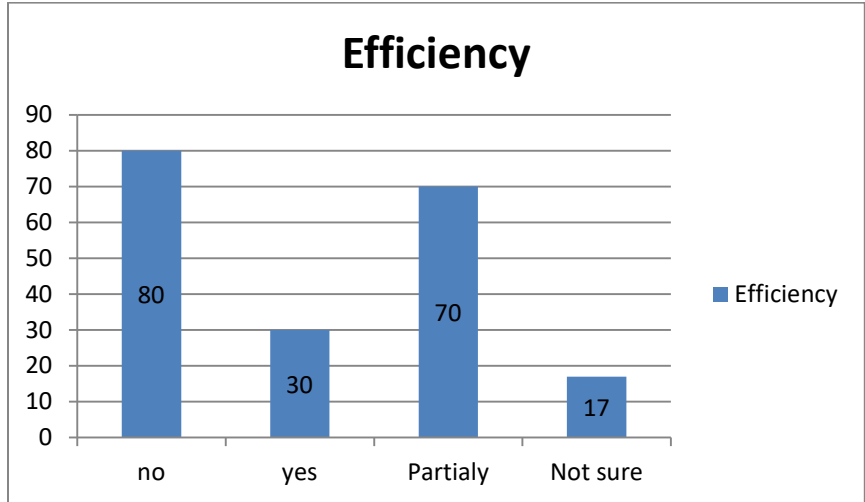
a) SD = 26.11    b) Mean = 49.25    c) Median =48.5    d) Variance =681.6875

Lack of finance and lack of machinery seems to be the top challenges faced by local authorities in Zvishavane urban as evidenced by data collected. Munzwa (2010) adds that developing countries are faced with financial challenges which make it hard to finance environmental management activities. In this case poor financing affects policy implementation and labour recruitment hence poor service delivery.

Table 13 below shows responses pertaining to efficiency of Zvishavane Town Council.

Efficiency	Responses
No	80
Yes	30
partially	70
Not sure	17

Fig13: below shows responses in relation to efficiency of Zvishavane Town Council.



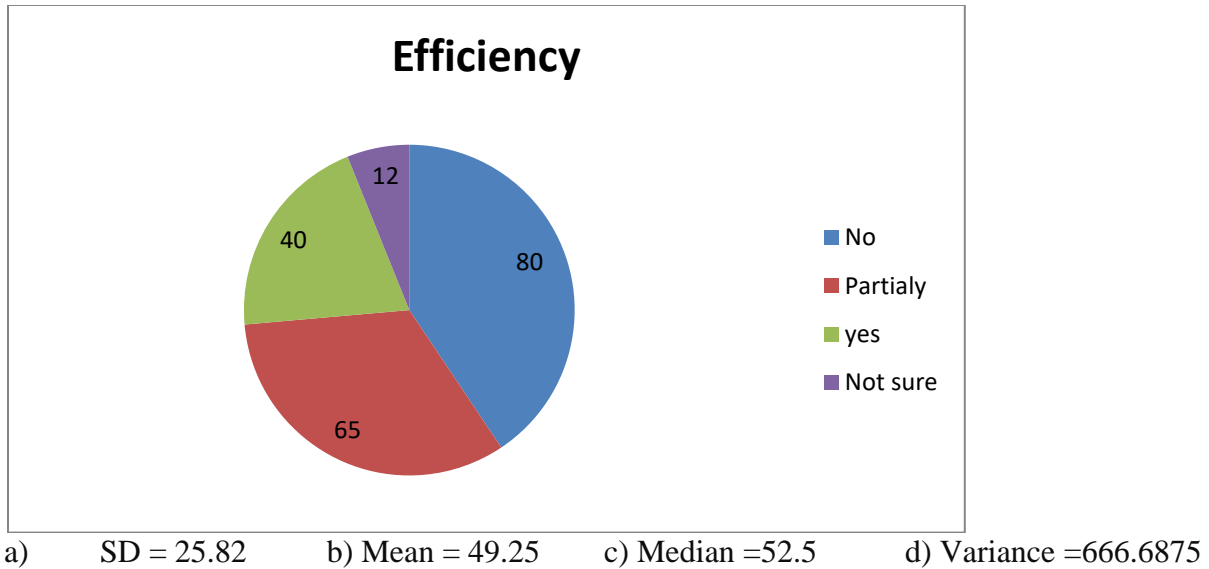
a) SD = 26.39    b) Mean = 49.25    c) Median = 50    d) Variance = 696.6875

Data collected proves that Zvishavane town council seem to be pressured by the population growth. This has affected efficiency in terms management of the socio-environment in Zvishavane urban. In relation to this Munzwa (ibid) asserts that lack of finance is the main challenge faced by local authorities resulting in reduced efficiency. He also states that corruption also plays part in lack of efficiency. This might also be the case in Zvishavane.

Table 14: below shows responses in relation to E.M.A’s efficiency in Zvishavane urban.

Efficiency	Responses
NO	80
Partially	65
Yes	40
Not sure	12

Fig 13 below shows responses in relation to E.M.A’s efficiency in Zvishavane urban.

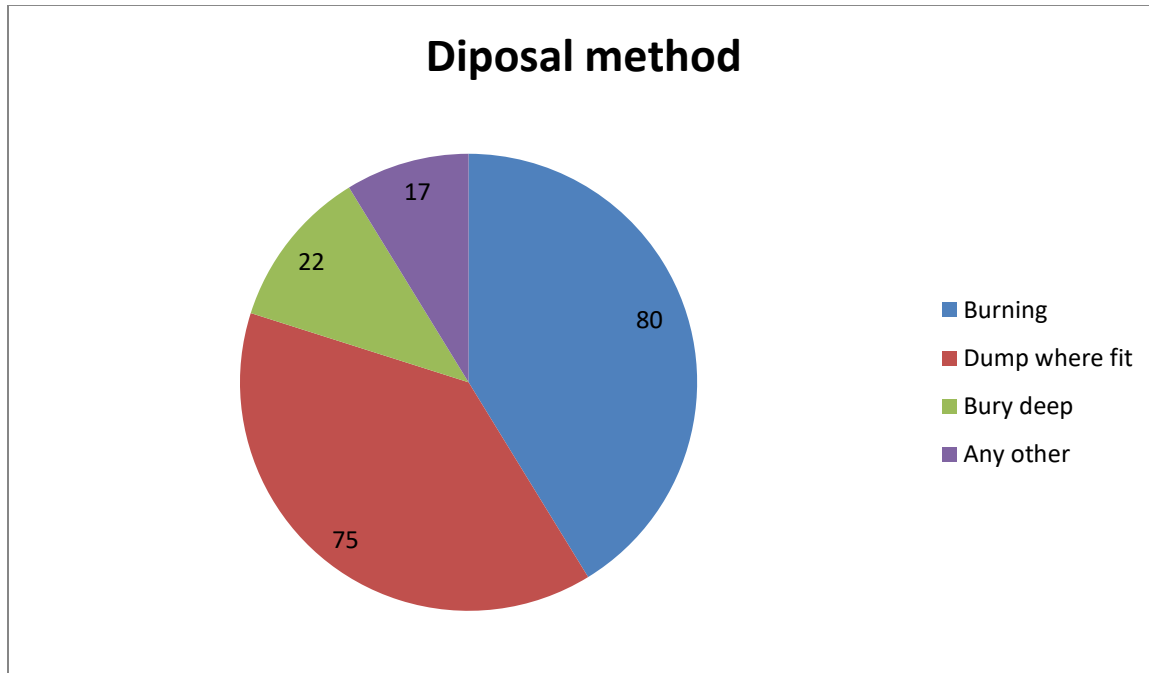


EMA seems to be absent on ground as evidenced by data collected. The data presented also proves that EMA is doing very little to push local council into taking action to address the issue of dumps and sewage problems. Munzwa (2010) asserts that developing countries faces financial challenges hence making it hard for them to sponsor sustainability issues. This also proves to explain the situation faced by EMA in Zvishavane.

Table .15 below shows responses in relation to how individuals are managing domestic waste.

Disposal method	Responses
Burning	80
Dump where fit	75
Bury deep	22
Any other	17

Fig.14 below shows responses in relation to how individuals are managing domestic waste.



a) SD = 27.82    b) Mean = 49.25    c) Median =48.5    d) Variance = 773.9375

The above data proves how lack of proper service delivery has affected the socio-environment .The majority seems to practice burning and dumping as a way of waste disposal. Very few practice burring deeply. In relation to this Mubaya (2012) argued that burning of waste and use of firewood in urban areas have contributed much to air pollution. Munzwa (ibid) also states that poor service delivery results in increased dumps and sewage burst. This shows how urban growth in Zvishavane led to burning and dumping of waste .In this case Walter (1991) attributed

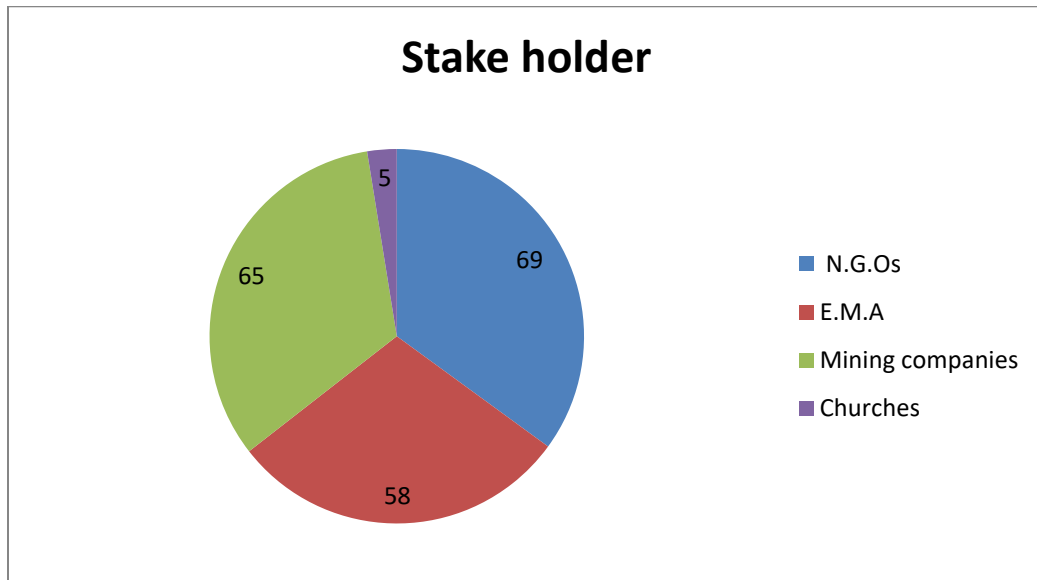
that urban population growth leads to environmental degradation. This seems to be applicable to Zvishavane urban as shown by data collected.

**4.5 Objective 4: sustainability and mitigation measures that can be introduced to address the socio environmental effects of Zvishavane urban growth?**

Table16: shows responses in relation to other stake holders that can be involved in proper management of socio –environment in Zvishavane.

Stake holder	Responses
NGOs	69
E.M.A	58
Mining companies	65
Churches	5

Fig 15 below shows responses in relation to other stake holders that can be involved in proper management of socio –environment in Zvishavane.



a) SD = 25.85    b) Mean =49.25    c) Median = 61.5    d) Variance = 668.1975

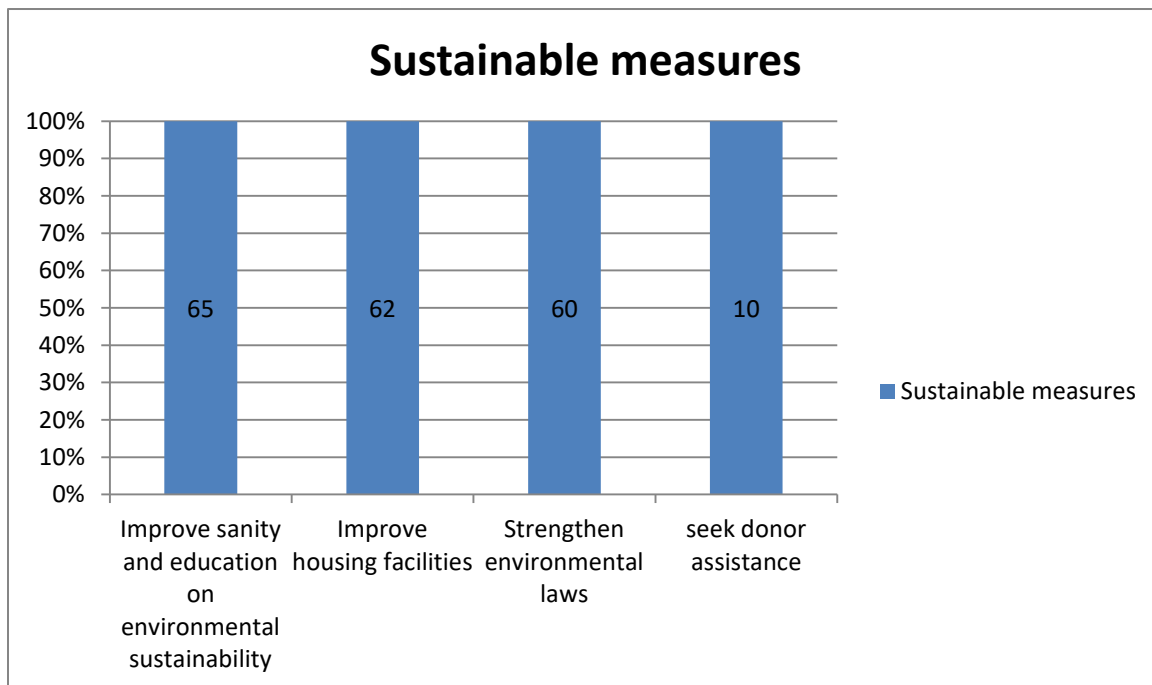
Data collected proved that inclusion of stake holders like NGOs, EMA, Mining companies and churches are some of the mitigation ways that can be introduced to promote environmental sustainability in Zvishavane urban. In relation to this Marshall (1999) the

importance of the environment calls for everyone to manage the environment. In this case of Zvishavane urban close cooperation between stakeholders seems another way of serving the socio environment.

Table 17 below shows responses in relation to possible ways to promote environmental sustainability in Zvishavane urban.

Sustainable measures	Responses
Improve sanitation and education on environmental sustainability	65
Improve housing facilities	62
Strengthen environmental laws	60
Seek donor assistance	10

Fig 16 below shows results in relation to possible ways to promote sustainable development in Zvishavane urban.



a) SD = 22.73    b) Mean = 49.25    c) Median = 61    d) Variance = 516.6875

Data represented above proved that there is need to strengthen environmental laws in promoting sanity and this should be coupled with education on sustainability. There is also need to improve housing facilities and strengthening of environmental laws in order to protect the environment.



This can also be done with help of donors according to data collected. In relation to this UN (2000) documented that there is strong need to manage the environment and many organisations are ready to help any communities promoting environmental management.

#### **4.6 Chapter summary**

This chapter looked at results on socio-environmental effects of Zvishavane urban population growth according to the answers provided by the respondents. It also included data analysis, interpretation and presentation in form of graphs and tables. The researcher also commented citing relevant literature.

## **CHAPTER 5 .CONCLUSIONS AND RECOMANDATIONS**

### **5.0 Introduction**

This chapter sums up the study by giving conclusion on the socio-environmental effects of Zvishavane urban population growth. The researcher managed to unearth causes of urban growth, its effects on the socio-environment, possible solutions as well challenges to the effectiveness of the efforts made in trying to curb the socio-environment effects of urban growth. Referencing was also made on findings in chapter 4 and chapter 2 literature reviews. The researcher also offered recommendations in relation to objectives and data collected.

### **5.1 Conclusion and lessons leant from the study**

It is of no doubt that rapid urban population growth negatively affected the socio environment thereby resulting in pollution, poor sanitation, poor service delivery and deforestation. The continuous alteration of the natural environment in creation of residential stands caused the researcher to conclude that urban population growth in Zvishavane negatively affected the environment to a greater extent. This is in line with the suggestion by Munowenyu (2000) that rapid urban growth strains the environment.

The researcher also noted that environmental management cannot be easily attained in Zvishavane urban because Zvishavane urban authorities seem to be facing challenges in managing the environment. Challenges unearthed in this research include shortage of resources, poor policy implementation and lack of co-operation amongst stake holders. This is in relation to the argument by Munzwa (ibid) that rapid urban growth adds pressure to the local authorities.

The researcher also noted that Zvishavane lacks environmental management practices. This is proven by existence of dumps and ruralisation of some parts. Land pollution and sewage flows

around town also prove that very few steps are taken to combat environmental degradation. There is need for the local authorities to research on the root cause as well as introducing laws to protect the environment and avoid future environmental hazards. The ministry of environment and climate change must also put a hand in supporting its agencies like EMA.

## **5.2 Recommendations**

The researcher recommends that there is need for long term plans to develop growth points in surrounding rural areas to reduce immigration into Zvishavane urban. This will reduce the rate of rural to urban migration which is another driver of Zvishavane urban population growth. In relation to this Harris and Todaro (ibid) documented that rural to urban migration is due to the hope to finding better living conditions in the receiving end .In this case economic development of source regions around Zvishavane urban can be a solution to reduce in migration into Zvishavane urban from surrounding rural parts.

There is also need for education on family planning locally to reduce fertility rates. This is so because fertility rates also contributes to urban growth hence the need to promote family planning .In relation to this Brockerhoff (1995) adds that urban fertility is also another cause of urban population growth. There for family planning needs to be exercised in Zvishavane to reduce rapid growth.

There is need for the government to pass legislations on how companies should operate in relation to the environment in terms of disposal of waste and use of better technologies that are environmental friendly. More so the government should also introduce a certain compulsory fee for all companies to sponsor EMA activities. The government if possible should also pass an

initiative that companies should supply labour force in activities such as a forestation and education of environmental management to the public more frequently .

The local authorities also needs to exercise efficiency in disposal of domestic waste .This is so because data collected proved that Zvishavane has been lacking in regular domestic waste collection in residential areas .This has promoted burning of domestic waste hence promoting air pollution, this has also promoted increase in dumps and littering anywhere which has been coupled with tragedy of the commons whereby no one feels responsible. The use and throw syndrome is also witnessed whereby people throw litter where they sees fit. In this situation the best recommendation for the local authorities is to issue refuse collection bins that will be collected regularly for recycling in order to save the environment from future harm.

There is also need to grant EMA exclusive rights in protecting the environment. This should include an independent environmentally management court which works together with its own policy force which specifically deals with environmental management issues. This is so because the environmental issues needs rapid moves that can copy with rapid urbanisation that is occurring .With the increase of urban population as noted UN(2000) there is need for taking serious consideration on the issue of environmental management, The use of Zimbabwe Republic Police in apprehending offenders limits the results of environmental management because they have other social matters to attend to .There for there is need for an independent environmental court and police force which can deter environmental degradation may result in disasters if the situation goes unchecked.

Moreover, a multifaceted approach on environment management should be put in place which incorporates all authorities on promoting environmental management. There is also need to link

environmental policies and other urban management polices at all administrative levels to promote coherency and to limit costs .The legal structure of the local authorities and municipalities' needs to be reviewed if possible and incorporate environmental management act to them. To add on the environmental management act also needs to be revised and incorporate stiff penalties that are strong enough to cattle environmental abuse. The researcher also recommends that EMA should advocate for environmental friendly technologies together with incentives for compliance to the international environmental management standards.

The government should also allocate more funds to EMA activities in order to curb environmental degradation in urban areas like Zvishavane .This is so because EMA mostly depend on trust funds which are often insufficient to fund their activities. This should be coupled with increase in garbage collection trucks for Zvishavane urban which will also help to cover the whole city. EMA should also be fully included in matters to do with allocation of stands .In this case the researcher recommends that the ministry of housing should work hand in glove with EMA in the allocation of land which is the major cause of deforestation in urban areas. To add on the researcher also recommends that if possible EMA should be granted overall powers to rule off other decisions made by local authorities if the decision is harmful to the environment.

There is also need for in cooperation of all stakeholders in environmental management .In relation to this a lot of stakeholders are ready to intervene in helping EMA and local authorities in environmental management process .Non Governmental Organisations are also ready to help in this process as it is another of the millennium development goal that is to promote sustainable development .Private sector groups like mining companies are also ready to promote environmental management, in relation to this Mimosa mine in Zvishavane holds quarterly meetings in order to engage community leaders in promoting zero harm to the

environment([www.mimosa.co.zw/social](http://www.mimosa.co.zw/social).) More so churches like Seventh Day Adventist are also cooperating with EMA in promoting environmental by having social Sundays whereby youths move around doing cleaning campaigns. There for the researcher recommends that there is need for sound planning that in cooperate all stake holders in environmental management.

There is also greater need to in cooperate civil societies in environmental management efforts, these engage in different activities in the society so their involvement will also help in buying the society's support since most civil societies have history with the communities .Their influence in the societies should be an advantage towards promoting environmental management. In Zvishavane in cooperation of ADRA (Adventist Developmental Relief Agency) can also help to promote environmental management because it is already working with the society in water projects .There for, the researcher recommend that there is the need to involve civil societies in environmental management because they already have experience with the societies hence winning the support of the society.

Churches should also be in cooperated in efforts to manage the environment, this is so because churches has been supporting environmental management activities. In Zvishavane churches have been carrying out cleaning campaigns periodically .This has been witnessed at shopping centres like Mandava and Eastval shops which is also a positive move towards management of the environment .To add on the SDA(Seventh Day Adventist )also went on to donate bins to promote proper disposal of waste. The researcher noted that the major reason why churches do campaigns periodically is because they lack finance, In this case the researcher recommends that the municipality should also join hands with churches and carry out cleaning campaigns more frequently.

### **5.3 Summary**

This chapter looked at conclusions and recommendations in relation to the objectives of the study. It also looked at possible mitigation measures that can be introduced in Zvishavane urban.

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([www.mimosa.co.zw/social](http://www.mimosa.co.zw/social).)



3. What do you think were the negative environmental effects that were brought about by Zvishavane urban population growth?

Land pollution [ ]

Water pollution [ ]

Air pollution, deforestation [ ]

Any other [ ]

4. What do you think were the positive physical environmental effects that were brought about by Zvishavane urban population growth?

Road networks [ ]

Building of schools [ ]

Building of medical facilities [ ]

Housing facilities [ ]

5. What do you think were the negative social effects that were brought about by Zvishavane urban population growth?

Overcrowding in houses [ ]

Prostitution [ ]

Unemployment [ ]

Poverty [ ]

6. What do you think were the positive social effects that were brought about by Zvishavane urban population growth?

Improved circulation in the informal sector and Employment creation [ ]

Easy access to health facilities [ ]

Easy access to educational facilities [ ]

More housing facilities [ ]

7. What do you think are the major problems faced today in Zvishavane due to urban population increase?

Poor water sanitation [ ]

Sewage bursts [ ]

Rubbish dumps [ ]

Poverty [ ]

8. What do you think are the challenges that are faced by local authorities in managing the socio-environment?

Lack of finance [ ]

Lack of machinery [ ]

Lack of enough labour force [ ]

Any other [ ]

9. Do you think Zvishavane Town Council is efficient in managing the socio-environment?

Yes [ ]

No [ ]

Partially [ ]

Not sure [ ]

10. Do you think EMA is taking action in curbing the socio-environmental problems brought by urban population growth in Zvishavane urban?

Yes [ ]

No [ ]

Partially [ ]

Not sure [ ]

11. As an individual, what are you doing to curb the problem of domestic waste as another socio-environmental problem of Zvishavane urban growth?

Bury deeply [ ]

Dump where fit [ ]

Burning [ ]

Any other [ ]

12. What other stake holders can be involved in solving the socio-environmental problems in Zvishavane urban?

Churches [ ]

EMA [ ]

Mining companies [ ]

NGOs [ ]

13 What do you think can be done to promote environmental sustainability in Zvishavane?

Improve sanitation and educating on environmental hazards [ ]

Improve housing facilities [ ]

Strengthen laws to protect the socio environment [ ]

Seek donor help [ ]