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**RESEARCH TITLE: THE ROLE OF THE ENVIRONMENT MANAGEMENT AGENCY
(EMA) IN PROMOTING SUSTAINABLE ENVIRONMENT MANAGEMENT IN
HARARE SOUTH**

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DEDICATION

I dedicate this dissertation to my father and mother who have showed overwhelming support through my academic years and instilled confidence in me. I also dedicate this to my brothers, sisters and friends who have been there for me through all these years of hard work and determination.

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ABBREVIATIONS

CDM.....	Clean Development Mechanisms
CITES.....	Convention on International Trade in Endangered Species
DEAP.....	District Environment Action Plan
EIA.....	Environment Impact Assessment
EMA.....	Environment Management Agency
FANR.....	Food Agriculture and Natural Resources
LEAP.....	Local Environment Action Plan
MDG.....	Millennium Development Goals
MEA.....	Multilateral Environment Agreements
NGOs.....	Non-Governmental Organizations
PZF.....	Proudly Zimbabwe Foundation
SADC.....	Southern Africa Development Community
UNEP.....	United Nations Environment Programme
UNCCD.....	United Nations Convention to Combat Desertification
UNFCCC.....	United Nations Framework Convention on Climate Change
WCED.....	World Commission on Environment Development
ZINWA.....	Zimbabwe National Water Authority
ZRP.....	Zimbabwe Republic Police

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ABSTRACT

The study focused on the role of EMA in promoting sustainable environment management in Harare South. In most developing countries, the increase in urbanization has exceeded the development of urban infrastructure and this has led to the multiplying of informal settlements, illegal dumping sites and uncontrolled vending in cities like Harare. The environment has currently become a topical issue globally with climate change, environment degradation and biodiversity loss among the major difficulties. Several Conventions have been ratified and Zimbabwe has also took part in those Multilateral Environment Agreements (MEA) such as the Ramsar Convention and Kyoto Protocol. However despite these efforts the country's environment is increasingly becoming degraded. The research aimed at the environmental challenges in Harare and how EMA has monitored and regulated environment issues as well as the programs carried out and their impact and effectiveness in improving the environment. A qualitative research method was used to gather information on several environmental issues in the study area. Interviews and observations were carried out to gather information.

1.0 INTRODUCTION

Environment protection has been topical globally as a result of increasing awareness in issues such as climate change, global warming and pollution. There is an immense link between the environment and development and the depletion of natural resources through degradation has been a cause of concern. Pollution of water bodies, massive deforestation, destructive agricultural activities, waste dumps and increase in air, land and water pollution from mines, industries and vehicles has largely contributed to environmental degradation. As indicated by Raven (2001) this has risen up out of the worry that there has been gigantic exhaustion and deterioration of natural resources to which has extraordinary caution to the world on the loose. The principle goals of this study is to look at the role by EMA towards sustainable environment management. It evaluates EMA's part in regulating and monitoring environment issues, for example, management of natural resources, protection of wetlands, pollution and environment degradation, protection of the environment and waste administration. It additionally looks to offer proposal on how the Environmental Management Agency can improve its part of environment protection in Harare South. Diverse partners have additionally worked together with the Agency in the mission to advance environmental sustainability and these incorporate communities, schools, corporates, groups, churches, industrialists, miners, NGOs, Local Authorities, government services and offices. There has been a solid inclusion of (NGOs) in financial and natural parts of formative work subsequent to the 1980s (Ramanathan, 2004).

1.1 BACKGROUND TO THE STUDY

The global world has ratified several environment Conventions. As a result of the Stockholm declaration of the United Nations Conference on the Human Environment in 1972 the international environment law changed that led to new thinking on how to reduce damages and better preserve the environment through law. In 1983 the United Nations General Assembly formulate a Commission known as the Brundtland Commission formally the World Commission on Environment Development (WECD) under the Chairmanship of Gro Harlem Brundtland. The report of the Commission, Our Common Future was published by Oxford University Press in 1987 which deals with sustainable development.

To carter for environmental issues surrounding the world different Conventions on environment protection have been ratified which include UN Framework Convention on Climate Change (UNFCCC), Ramsar Convention, Kyoto Protocol and Convention on International Trade in Endangered Species (CITES). The Kyoto Protocol was adopted to ensure reduction in greenhouse gases GHS emissions. It was adopted at the third Conference of the Parties to the UNFCCC (COP 3) in Kyoto Japan on 11 December 1997. It shares the objectives and institutions of the Convention and the major distinction between the two is that while the Convention encouraged industrialized countries to stabilize Green House Gases (GHGs) emissions, the Protocol commits to do so. The detailed rules of the implantation were adopted at COP 7 in Marrakesh in 2001 and known as the Marrakesh Accords. This defined policies to reduce greenhouse gas emissions (Idriani 2005). Annex A of the protocol lists six greenhouse gases: carbon dioxide (CO₂), methane (CH₄) nitrous oxide (N₂O), sulphur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs) (UN 2005). The core strategy for reducing greenhouse gas emissions is to reduce the burning of fossil fuels by using them more

efficiently, a policy that was met with strong opposition. Opponents of the protocol argue that that this would cause net economic damage, without acceptance of the immense benefits that Canada, for instance, has enjoyed from thirty years of energy conservation. An essential part of the Kyoto Protocol is its 'flexibility mechanisms' (Idriani 2005). These comprise international emissions trading (IET), by which industrialized countries (referred to as Annex I countries) can trade part of their emission budgets between themselves; joint implementation (JI), which allows industrialized countries to earn emission credits from emission reduction projects in other Annex I countries; and the Clean Development Mechanism (CDM), which permits industrialized countries to gain emission credits from emission reduction projects in developing countries.

It is apparent that only the CDM gives developing countries the opportunity to be directly involved in the implementation of the protocol, with direct implications for meeting the emission reduction targets of Annex I countries. It is important to note that the establishment of the CDM under the Kyoto Protocol has been greeted with mixed emotions from climate, forestry and development experts (Manguiat et al. 2005). Many methodological and generic issues regarding the implementation of CDM activities, and the role of CDM in climate protection and national development, remained unsolved up COP II, held in Montreal Canada in 2005, including the role of afforestation and reforestation projects as a specific part of CDM.

The Ramsar Convention was also adopted to cater for the protection of the world's wetlands. It was adopted in Ramsar in 2 February 1971 and entered into force on 21 December 1975. The Ramsar Convention was later ratified in 1987 in Nepal. The Ramsar Convention formally known as the Convention on Wetlands of International Importance offers a framework for national action and international cooperation for the conservation and wise use of wetlands and their

resources. Ramsar covers all aspects of wetland conservation and “wise use” of wetlands, recognizing that wetlands are extremely important ecosystems for biodiversity conservation

There was also the ratification of the Convention on International Trade in Endangered Species. It was agreed in Washington DC in March 1973 and entered into force in 1975. This is an agreement between governments whose aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. This represents a cooperative effort between countries to prevent loss of species resulting from international wildlife trade. It works by subjecting international trade in specimens of selected species to certain controls. Significantly, not one species protected by the Convention has become extinct because of trade since its implementation

The SADC member states have committed themselves to integrated and sustainable development. This commitment is demonstrated through their participation in the negotiations and ratification of major Multilateral Environment Agreements (MEAs). SADC has endeavored to put in place mechanisms for the implementation of MEA such as United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention to Combat Desertification (UNCCD), United Nations Convention on Biological Diversity, Basel/ Bamako Convention, Persistent Organic Pollutants POPs and Ramsar Convention. The SADC adopted a Food, Agriculture and Natural Resources (FANR) policy and strategy in 1993 with the objectives of ensuring sustainable utilization, effective management and conservation of natural resource so that they can contribute optionally to the welfare and development of the region (SADC 1998).

Zimbabwe has taken part in environmental issues and ratified a number of environmental agreements which include the Convention on International Trade in Endangered Species on flora and Fauna (CITES), Ramsar Convention, Climate Change, Biological Diversity and Combating

Desertification. The Southern African Development Community (SADC) member states, also accredited that unsustainable human activities are exerting pressure on the environment at both national and regional levels, (Baker et al 1990).

There was the establishment of the Environmental Management Agency which is a statutory body responsible for ensuring the sustainable management of natural resources and protection of the environment. According to the Environmental Management Act of 2002, the Environmental Management Agency is a statutory body which was established in terms of the Environmental Management Act [Chapter 20:27] of 2002. It is a parastatal in the Ministry of Environment, Climate and Water and was established to ensure sustainable utilization and protection of Zimbabwe's environment. It is a conglomeration of the former Department of Natural Resources which was merged with the Water Pollution Control Unit, the Air Pollution Control Unit and the Hazardous Substances Control Unit, both from the Ministry of Health and Child Welfare. It became fully operational in January 2007 and it derives its mandate from the Environmental Management Act (20:27). Some of the acts and policies frequently cited include: the Natural Resources Act; Environmental Impact Assessment Policy; Environmental Conservation Act; Environmental Conservation Strategy; Biodiversity Conservation Policy; Mines and Minerals Act; Forestry Act; Atmospheric Pollution and Prevention Act; Water Act; Town, Regional and Country Planning Act; Fertilizers, Public Health Act; Urban Councils Act; Rural District Councils Act; National Museums and monuments Act; Parks and Wildlife Act; and Road Traffic and Construction Act etc. (Nhamo, 2006). Therefore by these Acts, reporting and coordination was difficult therefore to harmonize them, the Environment Management Act was passed which dealt with the issues which were being addressed by all the fragmented Acts. This made it easier to plan environment initiatives easily and according to chapter 20.27 of the act, a body was

created to interpret the act which is the Environment Management Agency. The body has been decentralized in all towns in Zimbabwe and this has made environment management easier.

1.2 PROBLEM STATEMENT

Despite that Zimbabwe is a signatory to several environment treaties and conventions that aim to curb environment degradation and progress the management of natural resources including the Ramsar Convention, Convention on International Trade in Endangered Species CITES and UNFCCC environment problems are currently rapid in most of the country's urban locations. Locally there has been the formulation of the EMA which is also responsible for environment protection. Poor waste management, siltation of rivers, pollution and deforestation and loss of biodiversity are currently ravaging Harare South. Harare South has confronted numerous environment problems which incorporate air contamination, deforestation, pollution of water sources and poor waste management. To add most parts of Harare South have been characterized by litter and unlawful strong waste dumps on road corners, illicit settlements and most regions are accessing unclean water because of poor water sources management and in addition absence of treatment.

1.3 THEORETICAL FRAMEWORK

The sustainable development theory by Ian Scoones will be used in this study. This theory states that the right of states to develop is not absolute but rather as states develop, they should do that in a manner which will not compromise the ability of future generations to benefit. Thus environment management activities will be positive if there is sustainability. The UN Conference

on Human Environment in Stockholm in 1972 was the first notable international forum discussing sustainability at a global scale. The conference led to the establishment of the UN Environment Programme (UNEP) and the creation of a variety of environmental protection agencies at national levels.

The needs of developing countries have been strongly influenced by the Millennium Development Goals as well as the current Sustainable Development Goals of which this is one example of how sustainable development has been pulled in various directions over its 20-plus year history where there was more focusing on development issues particularly in integrating the MDGs with sustainable development principles and practices. Therefore all these principles all support the theory of sustainability in environmental management.

1.4 CONCEPTUAL FRAMEWORK

Environment refers to the living things and what is around them. It includes physical, chemical and other natural forces. The environment incorporate air, water, land and all the physical aspects which surrounds living organisms.

Sustainable development as expressed on the World Commission on Environment and Development (1987) is a term which alludes to the utilization of resources in a way which does not trade off future improvement but rather provides food for the present in the meantime permitting future improvement prospects to proceed with the utilization of the same asset. It is augmenting progress without depleting assets. Objectives of sustainable development incorporate advancing value of assets, protecting the ecosystem, enhancing human personal satisfaction, sustainable utilization of natural resources, satisfying worldwide measures. However there are various confinements to accomplishing sustainable environment protection as prove by

expanding populace development and density, uncontrolled utilization of energy and natural capital.

1.5 RESEARCH AIMS AND OBJECTIVES

The major aims of the research are:

1. To find, the way of life in Harare and how it contributes to environmental degradation.
2. To assess the programs introduced by Environmental Management Agency (EMA) to curb environment degradation.
3. To evaluate the effectiveness of EMA programs towards curbing environment challenges and suggest possible solutions on how to improve the environment.

1.6 RESEARCH QUESTIONS

1. What role is being played by EMA in ensuring sustainable environment management?
2. How is the Harare city's way of life impacting and contributing to the degradation of the environment.
3. How effective has programs introduced by Environmental Management Agency in curbing environmental degradations and promoting sustainable environmental management.
4. What challenges are being faced by Harare and how can there be improvements in environment management?

1.7 SIGNIFICANCE OF THE STUDY

This research is of centrality as it tries to address the environment issues confronting Harare and in addition look profound into the Environment Management Agency endeavors to guaranteeing sustainable management. The study will benefit environmentalists, industrialists, Local Authorities and groups around Harare and Zimbabwe at large. The environmentalists will be of importance as they regulate and monitor environment issues. Waste management, pollution, environment degradation and protection of water sources have been a noteworthy issue especially in Harare. The general masses should be taught in sustainable environment management and have an appreciation about the points of interest that encompasses the thought, for instance saving for future generations. The main path for a nation to create is the point at which its kin comprehend the substance and monetary estimation of environment assets subsequently there need to utilize them carefully. This examination will likewise help the general population to enhance their lifestyle consequently helping them to effortlessly see their negative association on nature in this manner contribute to a great extent in environment management. More so, the research will also assess what need to be done to improve the environment in the city of Harare. Thus the benefit to environmentalists, industrialists, communities and the local authority is of great importance as there is need for collaboration of different stakeholders in tackling environment challenges

1.8 LITERATURE REVIEW

The issue of environment sustainability is not new as different scholars have described in various perspectives. Several works and writings have been done on environmental sustainability and sustainable growth over the years. In "The Concept of Sustainability" Robert Goodland substantiates a history recording this need, introducing proponents ranging from Mill and Malthus to Meadows and Brundtland et al and set forth a meaning of environmental sustainability as the upkeep of common capital and as an idea separated from however associated with both social sustainability and economic sustainability. Environment sustainability includes thought of the physical inputs into generation stressing environmental life support systems without which neither creation nor humankind could exist and these life support systems include air, water and soil-all these should be healthy implying that their environmental service capacity limit must be kept up Robert Goodland (1995).

There are several definitions of the term "sustainability". While some have defined sustainability in relation to the ability of man to preserve the available natural resources and not overuse the resources in a way that it will be deficient in the future others have defined it in relation to policy making. The definition given by the UN Commission on Economic Development in its 1987 report seems to be generally acceptable. In its report called Our Common Future, Sustainability is defined as that which "meets the needs of the present without compromising the ability of the future generations to meet their own". Although some authors have found this definition to be problematic Taylor 2002, Jabareen 2008 Lele 1991 yet most believe that it meets most aspects of sustainability in its wide applications Dale 2001 Adams 2001. Taylor 2002 in his critic of the UN definition argued that it is difficult to determine the future needs of people in next generation which may be different from the needs of people today. He further added that the way the

developed countries view the concept of needs is completely different from views of that of the developing countries.

Aina (1996) states that the sustainability approach genuinely advocates that the world is seen as one ecosystem and that the economic improvement procedure ought to incorporate natural and environmental issues as a crucial part. Ecologists had long been concerned with how ecosystems responded to shocks and stresses, and mathematical ecology had blossomed through the 1970 and 80s, with important work from the likes of Buzz Holling and Bob May on the stability and resilience properties of both model and real biological systems (Holling, 1973; May, 1977). Sustainability could thus be defined in these terms as the ability of a system to bounce back from such shocks and stresses and adopt stable states. Neo-classical economists drew on theories of substitutable capital to define (weak) sustainability. And within economics debates raged over whether such a 'weak' definition of sustainability was adequate or whether a stronger definition, highlighting the lack of substitutability of 'critical natural capital' was needed (Pearce and Atkinson, 1993). Ecological economics meanwhile traced more concrete links with ecological systems, generating such fields as life cycle analysis, ecological footprint assessment and alternative national accounting systems (Common and Stagl, 2005). Elements of these debates were picked up by the business community, where notions of the 'triple bottom line' emerged, where sustainability was seen as one among other more conventional business objectives, resulting in a whole plethora of new accounting and auditing measures which brought sustainability concerns into business planning and accounting practice (Elkington, 1997), and at Rio, the World Business Council for Sustainable Development was launched with much fanfare (Schmidheiny and Timberlake, 1992), bringing on board some big corporate players. Drawing on wider popular political concerns about the relationships between environment, well-being and

struggles for social justice, political scientists such as Andrew Dobson (1999), delineated political theories that incorporated a 'green' politics perspective, and where sustainability concerns were put at the centre of a normative understanding of social and political change. Others offered integrative syntheses, linking the economic, environmental and socio-political dimensions of sustainability into what Bob Kates and others have dubbed a 'sustainability science' (Kates et al, 2001).

The concept of sustainability does not give enough regard for poor people and their intense vulnerability to natural debasement (Adams, 2008). The vast majority in the nation depend on natural resources essentially in light of the fact that they don't have some other abilities to manage them consequently they are vulnerable to poverty along these lines would misuse common assets. Redcliff (1995) claims that poverty reduction is the essential objective of feasible improvement even before environment quality can be completely tended to. The poor were associated with the direct impoverishment of the environment, as 'a world in which poverty is endemic will always be prone to ecological and other catastrophes' (WCED 1987:8). In this regard, calls were made for economic growth that realize the importance of the earth's life support systems: water, soil and the atmosphere (Cahill 2002).

Leeson (1995) advocates the principle of sustainable development. He is particularly concerned with broader national or regional trends, and the long-term consequences of negative social and economic developments. This confronts policymakers with the task to select between 'more immediate, quantifiable merits of a proposed course of action and the more speculative benefits to future generations of present self-denial' (Lesson 1995:38). However, in Africa, the time has come when we may need to consider sustainable development and sustainability as open questions. Since no one can really accurately predict the future, we should continue searching for

appropriate positioning and responses, and approach sustainability with an open mind, acting responsibly.

Coupled with an ever-increasing dependence and pressure on these resources (Darkoh 1998) it is indisputable that Africa is also a region of high uncertainties and environmental problems.

Burton et al (2006), expressed that developing countries should lessen vulnerability and neediness by industrializing. This then draws out the inquiry that should developing nations grow first then later cater for sustainability. Is the office doing what's necessary to ensure environment protection in a reasonable way or the nation should industrialize all the more then when she has contacted her crest search for components to secure the environment like what most creating nations liked USA, Japan furthermore at present China, India and South Africa. So this study is gone for judging whether EMA can figure out how to provide food for feasible environment or not judging from their exercises accordingly likewise helping noting whether we ought to create to the detriment of nature or not.

Matthews and Hammill (2009) note that fundamental issue following the Rio Summit has been in planning the move from hypothesis to practice as there is grasp of innovative, political and different limitations. In Harare there is no innovation for instance to air contamination levels noticeable all around, and budgetary allotments in the national spending plan for nature plainly uncover that there is absence of political will as there is prioritization of different divisions. In this manner usage of sustainable principles is enormously bargained. The term sustainable development experiences definitional dubiousness as the overwhelming perspective of governments and organizations is that improvement is proceeded with financial development made all the more naturally touchy keeping in mind the end goal to raise living standards and additionally breaking the connection between poverty and environmental degradation. Economic

growth is seen as an answer since more markets and innovation will create a wealthier world that is all the more biologically stable. In any case, it is difficult in most developing nations, as they need innovation and rely on upon normal assets. In this way this idea cannot be embraced in developing nations.

Environmental sustainability requires maintaining natural capital as both a provider of economic inputs called 'sources' and an absorber called 'sinks' of economic outputs called 'wastes'. Daly, 1973; 1974; World Bank, 1986; Pearce and Redclift, 1988; Pearce et al., 1990a; 1990b; Serageldin, 1993.. At the 'source site', harvest rates of resources must be kept within regeneration rates. At the 'sink site', waste emissions from industrial production must be controlled so as to not exceed the capacity of the environment to assimilate them without impairment Goodland, 1995

According to Chenje (2000), the Environmental Management Agency was made to uphold the procurements of the EM Act, yet needs satisfactory subsidizing for its usage as it depends generally on trust funds. While EMA vested much power in the Environmental Management Agency, the Act took away the lawful remaining of different organizations that acted as watch dogs. This suggests the length of the office runs all environment issues subsequently there is probability of ineptitude since there are no indicators to check their exercises following there is no opposition from other environment organizations along these lines environment administration can be traded off significantly.

This implies that as long as the agency runs all environment issues therefore there is likelihood of incompetency since there are no barometers to check their activities since there is no competition from other environment agencies therefore environment management can be compromised greatly.

1.9 RESEARCH METHODOLOGY

The study utilized qualitative research methods. This enabled the researcher to fully examine the challenges at a broader perspective. The research made use of a more qualitative approach as the researcher sought to get people bring out their opinions on environment issues. Many academic disciplines employ qualitative research techniques as a method of inquiry which mainly aims to gather in depth understanding of the human behavior and reasons that govern it (Denzin et al 2005). Qualitative research is a situated activity that locates the observer in the world. Its practices transform the world since it consists of a set of interpretive material practices that makes the world visible. The techniques included in this methodology which include but are not limited to the following interviews, conversations, photographs. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This implies that the researcher studies things in their natural set up, and attempts to make sense of or to interpret, phenomena in terms of the meanings people bring forth.

DATA COLLECTION TECHNIQUES

Interviews

The researcher made use of interviews to carry out the study. There was face to face interaction with the interviewee which made it more interactive and there was mutual understanding. The interviewee were selected according to specific contribution they give to the study. Interviews dig dip into the situation discovering the subject's meanings and thus providing a better understanding of the problem at hand. The interviewees incorporated individuals, Industrialists, informal traders and EMA personnel.

Questionnaires

The researcher used questionnaires which bear the advantage of having dates thus ensuring that information was documented with its specific dates. This enhances archiving of the information for futuristic uses. Furthermore questionnaires were used in this research with the aim of generating information from the local community in terms of their level of awareness to laws, policies and legislative framework guarding environment management in Zimbabwe. Questionnaires also possess the advantage of gathering information to extents which cannot be reached by personal interviews. The questionnaires were distributed through random sampling and purposive sampling.

Observations

The researcher used observation of the research area to carry out the study. Observations brought out firsthand information on part of the researcher which did not compromise relevance. The use of observations was of great importance as the researcher managed to view different environment problems and programs.

1.10 DATA GATHERING TECHNIQUES

Sampling

The area of research Harare South was difficult to interview and distribute questionnaires to everyone therefore there was need of sampling. A sample is a finite part of a statistical population whose properties are studied to gain information about the whole. When dealing with people, it can be defined as a set of respondents selected from a larger population for the purpose of a research (Webster, 1988)

The region of exploration was Harare South so was hard to meet and convey surveys to everybody thus in this examination there was need of testing. A specimen is a limited part of a factual populace whose properties are concentrated on to pick up data about the entirety. At the point when managing individuals, it can be characterized as an arrangement of respondents chose from a bigger populace with the end goal of an examination (Webster, 1988)

Sampling Methods

This research used purposive sampling. Purposive sampling relies on judgment of the researcher when it comes to selecting the units for example people, organizations and events that are to be studied. Usually the sample been researched is quite small especially when compared with probability sampling techniques. The main goal of purposive sampling is to focus on particular characteristics of the population that are of interest which will enable to answer the research questions. Therefore the researcher therefore selected EMA personnel, industrialists and informal traders as well as the public.

Target Population

The target population of this research will be people living in Harare South. It will be consisted of industrial personnel, residential areas individuals, EMA personnel as well as informal traders.

1.11 LIMITATIONS OF THE STUDY

The researcher encountered financial difficulties considering the distance between the areas of study and his current location. Finance was thus a problem encountered during the research as the researcher lacked a major funding source. However the researcher managed to utilize the limited financial resources to ensure the success of the study.

1.12 ETHICAL CONSIDERATIONS

Strauss A and Corbin J (1990), takes note of that the researcher should leave the organization in a superior position instead of in a more awful condition. The study should be gainful to the organization through guaranteeing that it doesn't point wrongs. Voluntarism is mainstreamed to a higher degree in the exploration. The types of respondents will be given deliberate without offering prizes to collaboration. The respondents must take an interest all alone will without the researcher driving them. Respondents ought to likewise be educated about the examination in subtle element so that there is understanding on the reason for the exploration. Trustworthiness will likewise be of significance to guarantee legitimacy of the exploration as opposed to misdirecting false measurements.

CHAPTER 1: THE ENVIRONMENT PROBLEMS IN HARARE SOUTH

1.1 Introduction

Environment issues have been a major concern in the present day globally as well as around Zimbabwe. Most cities around Zimbabwe are characterized by environment problems which are leading to massive environment degradation. The capital city Harare has been the most affected due to high population density as a result of rural urban migration. There are various environment problems in and around Harare which include poor waste management, soil degradation, pollution due to industry and vehicle emissions, deforestation, water, sewage waste and destruction of fragile ecosystems such as wetlands, climate change and management of dumping site.

1.2 Poor Waste Management Practices

Waste management has been one of the issues confronting Harare South. Rapid urbanization and industrialization in developing nations has brought about a lot of reject being uncovered which then poses health risks to the local people Hutty (1990). The areas in Harare South are characterized by illicit dumping from industries and local locations in this way contributing more to environment degradation. According Practical Action Southern Africa (2006) more than 2.5 million tons of household waste and industrial waste are delivered per annum in urban regions countrywide over Zimbabwe. Solid waste management is a reason for worry in Harare as found in the increase pollution by paper garbage, plastic, jars, sustenance left overs, uncollected bins and increment in unlawful dumping locales. Currently, the responsible authorities are failing to guarantee effective waste management because of malfunctioning equipment, working under tight budgets, illicit dumping and littering. As indicated by Coad (2006) disappointment by Local Authorities to collect refuse result in urban inhabitants dumping it at open spaces and also peri-

urban ranges which are wellbeing risks and cause pollution. These waste dumps are a source of environmental problems such as odors and smoke emissions resulting from rampant waste burning cause acute respiratory infections. Without diving into the effect of economic crunch right now upsetting the country, fuel deficiencies corruption and mismanagement inside the LAs the absence of satisfactory management has brought about the mushrooming of illicit waste dumps in most open spaces inside the urban territories. The chaotic solid waste disposal has put the health of residence at incredible danger as the open waste dumps are prime breeding sites for houseflies, rats and mosquitoes and different vectors of transmittable infections, for example, fever, typhoid, diarrhea, cholera and malaria.

As indicated by Hardoy et al (2001) absence of customary waste management in most urban regions particularly for the low wage zones is one of the difficulties going up against urban areas like Harare. Most zones around Harare South especially high density areas which incorporate Epworth, Mbare, Glen View are described by a few dumping locales because of the Harare City Council's carelessness in waste accumulation. Drainage systems are clogged because of litter that is thrown everywhere around residential areas in Harare South and this is leading to flooding on streets rainy season. During the economic meltdown in 2008 local councils were affected in their quest to effective service delivery. They began lacking resources such as refuse trucks as most of them were breaking down and fuel became another problem resulting in the authorities abandoning their duty of refuse collection. These authorities were affected in service delivery in particular waste management and refuse piled up encroaching roads as a result of excessive illegal waste dumping by most residents

1.3 Pollution of Water Sources

Dumping of solid waste from industries have contaminated Harare South water sources which are the fundamental wellspring of household water. This has prompted exhaustion of water sources and in addition death to aquatic life and as of late to water borne diseases including cholera and typhoid. There has been an expansion in dumping of over the top poisons in waterways that supply Harare's water by industries in regions which incorporate Workington, Willowvale, Southerton and Lochinvar. These toxins are contaminating principle sources with risky toxic substances. The industries are neglecting to arrange well their waste and dumping them in adjacent rivers and the streams have been characterized with industrial chemical waste. There has been worry at the increase in industrial and sewer contamination of the Mukuvisi and Manyame rivers. There is raw sewage dull shaded water and water hyacinth grass spreading in both Manyame and Mukuvisi rivers as an after effect of contamination.

Pollution and siltation of rivers is rampant in Harare South with the Mukuvisi and Manyame rivers massively affected. Water sources are being polluted by industrial waste, urban agricultural practices and illicit settlements (squatter). Contaminations from industries and urban agriculture has discharged toxic substances which affect underground and surface water. The wellsprings of pollution were recognized as residue, industrial effluent, sewage effluent and urban runoff conveying huge measures of supplements and natural materials bringing about the expansion in suspended and stored silt and these seriously affect the aquatic environment Munzwa, (1982); Moyo and Mtetwa (2002). The Zimbabwe Environment Outlook distributed in 2010 distinguished sewage treatment plants, industries, agricultural practices and mining as the principle wellsprings of water contamination in the nation.

The contamination of Manyame and Mukuvisi rivers by reasonable industrialists who might preferably pay a little fine than be saddled with the high expenses connected with safe dumping of waste ZNOL (1997). This has made most water sources very defiled undermining both aquatic and human life. The Mukuvisi and Manyame has turned out to be profoundly eutrophic and levels of nutrients have turned out to be high because of raw effluent, industrial and household waste being pumped into it. There is nutrients pollution, surface water contamination and ground water contamination, oxygen depletion of the city's water system.

Another point of pollution is urban and peri-urban agriculture being drilled by urban occupants in Glen View, Warren Park and Chitungwiza and is responsible for loading nutrients, for example, nitrates and phosphates in rivers prompting eutrophication. Agrarian exercises with the utilization of fertilizers and herbicides have brought on nutrient contamination through filtering and discovering path to the aquifers in this manner dirtying ground water. The high measure of chemical fertilizers in the water bodies go about as an impetus to weed development and green growth. This has prompted high contamination levels and siltation of Manyame and Lake Chivero in this manner the development of water hyacinth. There is additionally contamination of surface water by pesticides which are filtered prompting pollution of ground water which is boreholes and wells. Occupants living in the Eastern part of Harare, Msasa Park are likewise influenced by water contamination brought on by Zimphos a fertilizer company which contaminates boreholes and wells making the water risky for drinking. Municipalities are facing difficulties in treating water as a result of high pollution levels from industries and dumping, low budgets and the increase in population.

1.4 Poor Water and Sewage Reticulation Systems

The increase in rural-urban migration in the 90s brought about the city of Harare overpopulation consequently constrained accessible assets contrasted with the quantity of individuals living in the city. This prompted over-burdening nature in this way applying weight on the accessible assets. The zones around Harare South are characterized by raw sewage which has presented the living arrangement to different airborne illnesses like cholera, diarrhea and typhoid for instance in Budiro and Glen View in 2008. Chitungwiza a dormitory town 25km south of Harare, has grown rapidly in the last decade and its sewer system is under strain, taking care of around four times more sewage than it was initially intended for (Booth, 1994). Water and sewerage services in regions around Harare South especially low income zones the vast majority of them high density suburbs are over-burden which brought about blockages and spillages threatening human health. As indicated by Gumbo (1997) the breakdown of the overstretched sewer treatment works are in charge of a percentage of the contamination of water sources. The World Health Organization (WHO) reported in The Zimbabwe Situation on 24 May 2009 that aggregate cholera deaths were 4 276 of which 2 627 were community deaths as a consequence of pollution and failure to supply clean water in urban zones.

Sewage effluent from Firls Works Sewage Treatment Plant changes the biology of the Mukuvisi River in Harare in Zimbabwe, bringing about the multiplication of the water hyacinth (Moyo and Worster, 1997). A large portion of residential areas around Harare South such as Epworth as well as in Harare South West for instance Glen View, Highfield, Glen Norah and Mufakose are characterized by raw sewage in streets from burst channels and children play in it presenting themselves to health hazards, for example, diarrhea and cholera. As indicated by Chenga (2008) ZINWA expressed sewage blockages are brought on by items such as cotton fleece, clothes,

spoons, attire and sand utilized for scouring that are caught in the framework. This infers occupants are likewise having influence in bringing about sewage blasts and blockages. In different areas sewage streams into homes because of blockages and individuals have depended on scooping utilizing exposed hands debilitating their own particular wellbeing. As indicated in a report discharged by the Harare Residents Trust Harare's Firlle sewage plant which pumps water back to the Lake Chivero treats just half of the sewage it gets. As stated by Welch and Lindell (1980) the disposal of untreated or partially treated waste water into rivers is normal in developing nations and this includes the release of nitrates and phosphorous the significant supplements that control biomass growth. The Municipality carelessness has exacerbated this as there is less or no response from the dependable power. Raw sewage is additionally streaming into the water sources that give drinking water in this manner contaminating the dams. The Mukuvisi and Manyame rivers have become contaminated because of raw sewage which keep on being pumped into these streams.

1.5 Degradation and pollution of Wetlands

According to McInnes (2010) February 2 denote the date assigned to wetlands and is known as World Wetlands Day (WWD) remembering the Convention of Wetlands that was signed on the second of February 1971, in Ramsar, Iran. The treaty turned out to be regularly known as the Ramsar Convention of 1971. Wetlands can be alluded to as zones of area that are overflowed with water either occasionally or forever and these incorporate marshes, ponds, lakes, streams and swamps. These wetlands are home to different little creatures and plants and also critical in water stockpiling. Stewart (2001) endeavored to reason that wetlands are imperative birds natural habitats, birds use them for reproducing, nesting, and rearing ones. Research has likewise demonstrated that birds additionally utilize wetlands as hotspots for drinking water and for

bolstering, resting, safe house, and social connections (Carbio-Ramirez and Zuria, 2011). The accessibility or impact of water has additionally been noted as an essential wetland highlight to birds, while the presence or absence of shelter may impact whether the birds will occupy a wetland or an adjacent upland range (Stewart, 2001). They are imperative as they have different capacities including water storage, controlling flood, water purification, flow regulation and supporting bio diversity. Protection of wetlands is another environmental issue in Zimbabwe with responsible authorities failing to guarantee conservation of these delicate biological communities . Agricultural activities and infrastructural development are the significant dangers to these fragile ecosystems. Rapid urbanization and urban development in Harare have prompted the development of housing units and different structures to cater for the necessities of the developing populace whilst the accessibility of arable area has suddenly declined. Boadi, Kuitunen, Raheem and Hanninen (2005) clarify that, on account of such an advancement, urban authorities have depended on wetlands to meet the requests of the populace in the meantime undermining the status of such vulnerable land. Wetlands in, Budiriro 3 and 4, Hatfield, and numerous in Chitungwiza likewise confront impending threat in the face of developments occurring on them Masara (2012). However, this is a noteworthy danger to human security as these structures are inclined to flooding or crumbling as a result of failure. Population increase in Harare recently means more pressure on the city wetlands through development, dumping of waste development and siltation. Illegal settlements on wetlands are prompting water pollution from dumps and agriculture. Dumping of waste and sewage on wetlands have been extreme in Harare and this has prompted high contamination of water sources. The Lake Chivero which is one of the designated Ramsar sites is the most contaminated wetland in Harare because of dumping of waste and sewage into the lake. Industrial effluent flows from Harare South

industrial sites for example, Marimba, Willowvale through the Mukuvisi River and deposited into the Lake. This has prompted defilement of the water source threatening aquatic and human life as Harare relies on upon water from the intensely dirtied lake.

Illegal settlements are becoming popular around the city. This has led to settlements on wetlands as well as on areas around these important ecosystems. Pollution due to dumping of waste and defecation on nearby bushes have increased as these settlements have limited structures such as toilets. The illegal settlers have also embarked on livelihood practices such as agriculture polluting the wetlands with fertilizers and poor farming practices like stream bank cultivation. There has been increase in land allocation on wetlands in Harare and most of these structures are targeted for demolition for example in Epworth. Land barons continue to illegally provide land to the public on water logged areas. The illegal settlers depend on these water sources for drinking water threatening their health as they become exposed to water borne diseases such as cholera and typhoid. The allocation of wetlands for residential purposes and business around the city has increased. This shows that wetlands protection has been neglected over infrastructural development and this has been met with criticism from various stakeholders.

1.6 Deforestation and Biodiversity Loss

The country has been characterized by massive deforestation and the capital city Harare in particular is not an exception. There are different factors such as power cuts, poverty and illegal settlements which are major contributors to deforestation in Harare. Deforestation has led to loss of trees which are important as carbon sinks. The increase in air pollution through industrial processes, vehicle emissions and burning of waste has therefore worsened as there is lack of carbon storages resulting in urban heat islands. Harare South has been affected by deforestation as a result of economic hardships which has resulted in wood becoming a source of livelihood

for many as well as increase in power shortages. With the increase in urban population due to rural-urban migration deforestation has become rampant as there are more people over available resources. Kaushik and Kaushik (2006) stated that the causes of unsustainability is over population thus people will misuse the natural resources to meet their basic needs for example firewood as a source of energy. There have been concern from environmentalists over the way people resorted to use of firewood as a source of energy. This has worsened the situation as people depend on wood for energy thereby resulting in cutting down of trees. Deforestation has contributed to depletion of the ozone layer as the carbon stores are destroyed. Soil erosion become another problem as there is increased run off due to concrete surfaces and cutting down of trees which hold the soil compact. Urbanization and infrastructural development act as contributing factors to deforestation in clearing open spaces. Settlements in Harare South such as Epworth and Designated areas for example wetlands have been cleared for development disturbing food chains and important bio diversity. Clearing for urban agriculture is another factor which is increasing the cutting down of trees.

Soil degradation is a factor speeded up from deforestation through soil erosion from both running water and wind. The cutting down of trees exposes the soil to runoff thereby increasing soil erosion and formation of gulley. Urban agriculture through cultivation along stream banks and hill slopes for example in Warren Park is another factor contributing to soil degradation and its loss of value.

1.7 Industrial and Vehicle Air Pollution

The increase in vehicles as well as industrial emissions and burning of fossil fuels in and around Harare has been an environmental challenge. Congestion of ex Japanese used cars has been a

cause of concern to the city's environment as these are contributing to massive carbon emissions thereby pollution. Industrial emissions and burning of fossil fuels has also threatened the environment. Backyards have also become rubbish burning sites as a result of poor waste management by the local authority. Dumping sites have encroached into roads and streets and to get rid of this residents resorted to burning rubbish on these sites. The trash contains a lot of plastics which releases toxic chemicals and pollutants including carbon monoxide and ash which pose dangerous health conditions if inhaled. It also puts a significant amount of harmful chemicals into the atmosphere especially if the dump contains tyres, petroleum based wastes and industrial chemicals. People with pre-existing respiratory conditions, children and the elderly are at a higher risk of affection. People have neglected processes such as reuse and recycling which are safer than burning of waste material. This contribute to massive air pollution and emission of chemical toxic gases which are dangerous to human health. Air pollution has become a major environmental challenge in the city of Harare and environmentalists are concerned with the way the city is affected.

Emissions from vehicles which are increasing by day around the city is also a cause of concern. Vehicles are probably the largest single source of pollutants such as hydrocarbons, nitrogen dioxide and carbon monoxide. The country is being flooded with imported low cost second hand vehicles which do not meet strict emission standards of the countries of origin. Most of these vehicles are very old and bring out smoke which contribute to air pollution. The high number of vehicles in and around Harare mean that there is also high emission rates into the atmosphere of pollutants such as carbon monoxide, nitrogen dioxide and hydrocarbons. The effect of this pollution is increase in prevalence of illnesses like chronic bronchitis asthma and heart disease. The formation of acid rain from these gases result in the corrosion of buildings. Industries are the

major contributors to air pollution due to their chemical processes and burning of fossil fuels. These have been a cause of concern to surrounding residential areas with residents fearing for their health. Industrial processes emit chemical toxic gases contaminating the atmosphere increasing greenhouse gases which result in depletion of the ozone layer and global warming. The industries in Southern part of Harare namely Willowvale, Lochinvar and Workington are polluting residential areas through gas emissions and dumping of industrial waste. Most underground water sources and land around these areas are heavily polluted making the water unsafe to drink. Disposal of these chemicals on land and water sources contaminate these areas and lead to massive environmental degradation. Vehicles also pollute land through oil leakages on surfaces.

CHAPTER 2: PROGRAMS INTRODUCED BY EMA TO CURB ENVIRONMENTAL PROBLEMS IN HARARE SOUTH

INTRODUCTION

The environmental challenges facing Harare have been met with various responses from different stakeholders. Several initiatives have been put in place to curb these challenges particularly by the Environmental Management Agency (EMA). The Agency has worked with various stakeholders in dealing with environmental degradation and these include law enforcers, environmentalists, churches, community organizations, Non- Governmental Organizations (NGOs) and government. Sustainable environment management is the major concern of the Agency and it has put efforts in ensuring environment protection through certain programs to tackle waste management including awareness campaigns, education, clean up campaigns, distribution of anti-litter stickers to public vehicles and prosecution of litterbugs. The Agency also introduced Environmental Impact Assessment on proposed development projects, licensing of companies, inspections and monitoring.

EMA has set up the Environment Management Services and the Environment Protection Service to curb the environment problems. These are initiatives which are towards curbing the environmental challenges facing the country and in this case Harare. The Agency has set up these structures to ensure environment sustainability through inspections and legislation.

2.1 ENVIRONMENT MANAGEMENT SERVICES

Introduction

Environment management services department is mandated to disseminate environment information to society. It is divided into the Environment Education and Publicity (EEP) unit and Environment Planning and Monitoring (EPM) unit.

2. 1.1 ENVIRONMENTAL EDUCATION AND PUBLICITY UNIT (EEP)

This Unit involves training and capacity building of stakeholders on environment issues and development, raise awareness on the causes, effects, environment laws and ways to mitigate environment degradation.

2.1.2 Training and Capacity building of stakeholders

Capacity building implies strengthening of individuals with capacities and qualities to enhance their execution and accomplish sustainable development as indicated by the Government of Zimbabwe (1997). Rules and regulations that govern human behavior on the basis of environment protection are set, and this fabricates individuals' capacity to have eagerness and duty to environment management and to adjust to requests and circumstances, as indicated by UNEP (2002)

The public participation in ecological issues and concerns improves the capacities of individuals in advancing environment protection since they have admittance to information on environment matters. In Zimbabwe and Harare specifically there is requirement for individuals to have expertise on environment management laws and directions. EMA distribute environment information by issuing flyers to local people, through banners, through the media, through

councilors and its ward facilitators. Public awareness and education is essential in elevating the ability to address environment and development issues, it changes individuals' practices and recognition on securing nature.

EMA accomplices with schools in bringing issues to light in this way school children take dynamic part in taking an interest ecological wellbeing works on, including safe drinking water, sanitation and nourishment and biological systems and in pertinent exercises, in such manner EMA has done an essential activity which is being perceived for its prosperity and advancing environment preservation

2.1.3 **Raise awareness on environment issues**

Efficient awareness and education needs inclusion of the local actors. Agenda 21 has distinguished training and awareness as key ranges to environment maintainability, UNEP (2002). The Agency has participated in schools and people in general through speeches and competitions. In developing nations individuals endure the shortfall of not having sufficient knowledge on the causes, impacts and preservation strategies of nature. Environment awareness results in individuals being delicate to the environment and embrace a feeling of inspiration on attempting to enhance and keep up environment quality. Ways on the most proficient method to preserve nature can be outlined at local level subsequent to their perspectives and feelings are currently being heard without apprehension, particularly the difficulties confronting urban occupants because of environment degradation in urban communities

Outstandingly, as indicated by UNEP (2002) awareness on environmental change ought to be prioritized since Africa has uncured numerous forms of climatic changes. Deforestation, air pollution, industrialization, poor cultivating exercises among others negatively affect the

atmosphere bringing about consumption of the ozone layer, dry spells and starvation, desertification which brings about disease outbreak and deaths, subsequently the community must know on approaches to conserve nature to minimize these results.

2.1.4 Provision of up to date and quality environment information

EMA elevates access to data through the Environment Library, master specialists in every division to address environment attentiveness towards sustainable development. One can get immediate or aberrant thoughts and perspectives on environment, which is vital in the union and correction of some demonstrations to suit different circumstances and spots. Access to data advances straightforwardness and responsibility. The unit is additionally in charge of the arranging of correspondence projects, for example, National Environmental Day, World Environment Day remembrances, World Wetlands day and the National Fire awareness week. It draws in with partners like industrialists, agriculturists, NGOs, miners, school children, people and law and enforcement agencies, as per the Sunday Mail.

2.2 ENVIRONMENTAL PLANNING AND MONITORING UNIT

Introduction

Environment planning and monitoring unit deals with land use and environment planning, project planning, local environment action plans and environment research and development.

2.2.1 Land and Environment Planning

As relevantly noted by Southern Africa Resource Watch (2013) strategies and laws that administer and manage the relationship amongst men and nature assumes a fundamental part. According to Fellman (1997) human settlements arrangements should emphasize more planning,

examination and delivering of affordable housing toward feasible human settlement which can convey safe water and appropriate management of waste. Deb (2003) contended that people are great conservers of nature, in such manner one can say people should be given a chance to take an interest in ecological preservation exercises.

In environment preservation open interest in basic leadership is of quintessence. EMA makes utilization of its ward coordinators to pass on data on individuals' perspectives and observations on making decisions of land and environment, which makes its projects pick up force

2.2.2 Project planning

Project planning is a procedure of encouraging decision making with a point of protecting the environment, social, political and economic development by giving a comprehensive way to deal with accomplish reasonable results as indicated by UNEP (2002). Risky ventures require arranging, before usage one can take an undertaking appraisal on the effect of the task and how it will enhance the standards of people and the environment. EMA has specialists who help in assessing projects before, during and after execution. Project planning cover the necessities of males and females to decrease clashes, and it helps in building local information awareness. EMA utilizes this framework to evaluate the requirements of vulnerable groups to a more secure managing arrangement.

2.2.3 Local environment action plans

The Environmental Management Agency has since 2007 been embarking on capacitating local people on Local Environmental Action Plans. LEAPs programme involves the participation of all stakeholders according to EMA web block (2014). The aim of plan is to ensure participation

of locals in decision making on environment matters at local level. As aptly noted by EMA, notably local action planning was first introduced in rural areas under the District Environmental Action Planning (DEAP) process because it was originally believed that environmental problems were concentrated there. However it has been observed that, urban areas have also been experiencing increasing environmental problems.

LEAPs is of importance because it integrate various groups of people with different views, beliefs and values and have a common ground of environment conservation for the betterment of our communities and nation at large. Also can be used for identifying, prioritizing and helping to solve environmental challenges being faced by a community and if properly compiled, the plan will serve as a blue print for future investment by the community according to Markowitz (2000). Importantly is that the participatory nature of the programme enables the community to be identified with the projects and to have a sense of ownership over them.

2.2.4 **Environment research and development**

Environment innovative work incorporates research on a specific issue and surveying it, it helps local people to assume responsibility in moderating their surroundings by giving the status report of for instance air, water and land, as indicated by UNEP (2002). Research is a basic stride in having a domain arrangement and choice since it gives a reasonable examination of a situation issue confronting a group and the effects it will bring if move arrangement is not made or postponed by public and private institutions as well as individuals.

EMA helps in highlighting the environment needs of an area to advance sustainable development. As indicated by UNEP (2002) this sets up a benchmark of environment conditions from which to quantify the adequacy of moves made to enhance the environment standards.

Moreover innovative work helps in raising public awareness of environment issues, and conceivably leads toward connecting with nationals in enhancing the environment and to assemble connections and associations among partners that can prompt new opportunities for action.

2.3 ENVIRONMENT PROTECTION SERVICES

Introduction

Environmental Protection unit is tasked with enforcing environmental legislation and standards. It is divided into two units, Environment Quality and Ecosystem Protection.

2.4 ENVIRONMENT PROTECTION UNIT

Environment protection involves protection of the ecosystem, environment impact assessments, monitoring and compliance, environment management plans, licensing and the national fire strategy.

2.4.1 Ecosystem protection

Ecosystem refers to living things which have a link with one another. They depend on each other for food, protection, shelter or reproduction, forests, deserts, ocean ecosystem according to Bolger (2014). Furthermore he states that in an ecosystem, plants, animals, other living things and non-living elements form networks of mutual dependency. These networks provide food, shelter and the means of survival to the living inhabitants. So one can say in an ecosystem there is of form of interdependency

EMA strives to protect the ecosystem by implementing educational programmes to enhance participation of the people in protecting the ecosystem since we also depend on it for survival. As aptly noted by Devisscher (2010) population growth poses a threat to the ecosystem because of unplanned settlement, putting pressure on resources causing environmental stresses like loss of biodiversity, air and water pollution and climate change.

2.4.2 **Environment impact assessments (EIAs)**

Kholer (2011), states that Environment Impact Assessment is a method for recognizing, anticipating and assessing the natural effects of a proposed development activity, and its choices, before a choice is made. Silas bolster this perspective by saying it recognizes the life of a task, negative effects and advantages, to minimize environment harm.

As relevantly noted by Kholer (2011), EIA expects to secure and enhance the nature of environment. EMA is engaged into water testing administrations through its national research center which elevates safe drinking water to the general population and animals. EMA goes for serving a straightforward and responsible administration by monitoring and documenting appraisals of different activities and analyses the cost benefit ratio and provide a decision.

2.4.3 **Environmental Monitoring and Compliance**

Environmental monitoring is concerned with monitoring of state, threats, pressures and opportunities to environment protection. Notably monitoring is important because it helps to identify environmental causes, effects and proposes measures to mitigate adverse environmental effects. Monitoring can result in prediction of effects after mitigation measures are implemented

by doing follow ups. Monitoring and compliance can pave way for public participation and this reduces the chances of outbreak of diseases and deaths, costs, environmental harm among others.

2.4.4 **Licensing**

EMA has perceived the requirement for permitting expressing conditions to human exercises on nature. As per Hauchman (2013) licenses are offered to specialists with full necessities of the activity to be carried out. Enquiries about specific exercises are done for clarification before issuing of the permit. It is astute to note that there are distinctive sorts of grants in connection to what one is doing, for instance mining license, industrial permit.

2.4.5 **National Fire Strategy**

As indicated by Shilky (2007) fire episodes can bring about loss of biodiversity, air pollution, death among others. EMA has put measures to minimize and stop fire episodes, through the National Fire Strategy which expresses that lighting of flame is restricted particularly outside private and business premises.

The Forests Commission upheld this perspective by saying purposeful lighting of flame and helping with the lighting of flame is an offense. To minimize and stop fire offenses, EMA is locked engaged into the polluter pays framework which has decreased the rate of intentional fire episodes in Zimbabwe

2.5 **ENVIRONMENTAL QUALITY UNIT**

Introduction

Environment quality unit has laboratory services, waste management, environment quality standards of water, air and effluent.

2.5.1 Environment quality standards waste, water, air and effluent

The clean and safe environment requires great quality which incorporates safe dependable drinking water, clean energy sources, ecosystem insurance, as well as human health. EMA means to enhance the quality standards of the environment in Harare South by engaging in clean up campaigns. National laboratory services help with water testing, polluter pays activity has diminished the rate of environment pollution.

2.5.2 National Environment Laboratory

Laboratories are imperative to discover arrangements scientifically. Research activities are done adequately and productively in light of the fact that human and environment improvement relies on upon the outcomes. All the more so it can construct public certainty and results in interest of local people and sets up local action plans to lessen environment harm. EMA is involved in water and environment testing and reports on the examination results which can make the stakeholders aware on environment concerns. Laboratories are important to find solutions in a scientific way

2.5.3 Waste Management and littering

Controlling and monitoring of solid and hazardous waste facilities control and transfer of radioactive materials and utilization of pesticides and advances a sound administration of waste. Viable waste management helps in the sustainability of the ecosystems.

There is need to minimize wastes disposal and encourage reuse and recycling of waste. EMA partners with the Harare City Council to reduce waste disposal of waste in the streets.

2.5.4 Production of the national state of the environment reports and other environmental database

EMA produces national reports per 5 years. The aim of the report is update and raise awareness on Zimbabwe's Environment Outlook. As aptly noted by UNEP (2002) the report outlines the environmental resources available in the country, causes and pressures on these resources causing degradation and resource depletion, effects, how the Agency responded and the outcomes of the actions to stop and reduce these pressures for sustainable development at local and at national level according to the Southern Africa Resource Watch (2013).

The reported information and databases can be used to solve environment problems. The Agency will give priorities and plan ways on how to mitigate degradation. These databases are important as a source of referral to the activities of EMA and how it is impacting for a better change. It is a way of showing accountability and transparency, and commitment in conserving the environment.

2.6 Environment Impact Assessment

According to EMA in Zimbabwe Environment impact Assessment began as a policy in 1994 following the Rio Summit of 1992 and it was a new initiative that was started to contribute towards sustainable development in the country. As a policy there was no legal backing and it was therefore implemented voluntary. The Environment Management Act Chapter 20:27 was enacted in March 2003 and provided the legal backing that was lacking and sections 97-108 of the Act deal with Environment Impact Assessment provisions. The Section 98 of the

Environmental Management Act chapter 20:27 provides that the project developer should engage an independent consultant to undertake Environment Impact Assessment. Statutory Instrument 7 of 2007 also provides for the implementation of EIA Sensitive Ecosystems Protection wetland utilization hilltops and mountains. Statutory Instrument 7 of 2007 EMA provides that before any development starts, there must be an Environmental Impact Assessment done and for protection of Wetlands, Public Streams, and other certain lands in part III and VI, respectively (Government of Zimbabwe, 2007).

This can be regarded as a tool used to determine the project procession or in which manner it should. This is a major step towards sustainable environment management as it ensures that there is development without threatening the environment. The Agency brought up this initiative to curb massive pollution characterizing cities as well as environment degradation which has been popular particularly in Harare. According to the interview the Agency also reduced Environment Impact Assessment charges thereby ensuring that those who want to develop go through the process easily.

2.7 Clean Up Campaigns

In the quest to ensure a clean environment in Harare South EMA has put up clean up campaigns as a way to reduce litter and poor waste management characterizing the areas. According to the interview Clean Up campaigns have been of importance in promoting the 3Rs of recycling, re using and reducing with garbage being recycled for reuse. EMA refers to a cleanup campaign as a community based environmental initiative that inspires and empowers communities to clean up fix up and conserve their environment. The Agency is working in partnership with various stakeholders who are involved in waste management including Community Based Organizations,

Local Authorities and Waste Management Committees and others such as communities, organizations, churches, businesses, schools and tertiary institutions. The 2015 Clean-Up the World weekend from 18-20 September saw different CBOs cleaning shopping centres and public areas in Harare South. Several groups thronged the event including EMA, school pupils, Environment Africa, Harare City Council and Miracles Mission. The Local Authorities have participated in these campaigns with the City of Harare embarking on the Clean Up campaign under the theme Keep Harare Clean in collaboration with EMA. In residential areas clean up campaigns have been regularly carried out in the quest to promote a clean environment for example at Pamastones in Highfield on the 16th of December 2015 with EMA, Delta and City of Harare participating. According to one respondent “the Clean Up campaigns have been important in litter reduction and we have benefitted from recycling of waste and have supported livelihoods”. Different churches and organizations such as UFI and SEED have carried out these campaigns in collaboration with the Agency thus addressing environment problems facing the city and ensuring sustainability.

The Agency has also set an environmental calendar in which September is regarded a Clean Up month. Different activities such as removing litter from public areas, clearing illegal waste dumps, planting of trees and education and awareness characterize these clean up campaigns. The Environmental Management Agency provide these stakeholders with gloves, face masks, bin liners, rakes, brooms and water.

2.8 Keep Harare Clean Project

The City of Harare in conjunction with Environmental Management Agency EMA as well as the Zimbabwe Prisons and Correctional Services ZPCS have intensified the Keep Harare Clean

Project. This project is an environmental campaign that inspires and empowers communities around the capital to clean up maintain and conserve their environment. It is under the city Environmental Recovery Plan adopted to ensure a sustainable clean city. The programs include clearance of all illegal dumps around the city, education and awareness, cleaning up of sanitary lanes and streets and community and stakeholder participation. The issue of sustainability is important in this campaign. This program has focused on the 3 Rs which are the principles of reducing, recycling and re using waste thus promoting sustainable environmental management.

2.9 **Awareness Campaigns**

The Environmental Management Agency has come up with environmental awareness campaigns to ensure dissemination of information to the public. UNESCO (2004) environment awareness is important in promoting sustainable development. These have been introduced to provide information on the importance of environment protection and curbing environment degradation. Most of the local public have less knowledge on environment conservation thus it is a positive move by the agency to ensure protection of the environment as well as environment sustainability. Awareness campaigns have included anti- litter stickers in public vehicles where most people dump litter from these vehicles through windows. These have helped in ensuring information distribution on the negative impacts of this dumping.

2.10 **Prosecution of litter bugs**

The public, industries and several local companies have contributed higher in dumping litter illegally. To curb this challenge of litter bugs the agency has introduced stiff penalty. The law of Zimbabwe as governed by sections 70 and 83 of the Environmental Management Act CAP 20:27 of 2007 as well as Statutory Instrument 6 of 2007, Environmental Management (Effluent and

Solid Waste Management) Regulation states that it is an offence to how or dump litter at any place other than a bin, to throw litter out of a moving vehicle but instead keep it in a trash bag which will later be emptied into a bin, not to provide a waste bin for place under your control, not to have a bin in a public vehicle such as a bus and commuter omnibus. According to respondent from the agency EMA has prosecuted a total of 1600 litterbugs in 2015. Prosecution of litter bugs has been brought forward to ensure that there is less dumping thus environmental protection and sustainability. There has been introduction of fines to people who litter with 20 dollars and 5000 dollars for dumping. According to one respondent dumping of litter has seen some of his colleagues who are vendors facing heavy penalties of community service. This however is being ineffective as people just continue to litter and pay fines. According to EMA respondent the Agency has therefore proposed community service as the punishment for littering. Certain initiatives for example household inspections are introduced by the responsible authority in the quest towards promoting environment sustainability. However people have resorted to dumping litter during the night. According to one respondent in Harare South, “we have resorted to dumping litter at night as we fear prosecution during day time and there is nothing we can do as the City Council is not coming to collect litter in our areas”.

The other initiatives proposed include providing deposits for cans and PET bottles to reduce litter and dumping of waste. Food packs and kaylites are also planned to be banned as well as other containers used by vendors for packaging.

The Agency has worked with schools in its mandate of ensuring the sustainable utilization of natural resources and protection of the environment. To curb environmental challenges in Harare the Environmental Management Agency has introduced Environmental Stewardship which is necessary in school children as it brings responsible use and protection of the environment

through conservation and sustainable practices. The Environmental Management Agency began working with schools in 2010 through school debates, Environmental school projects competitions as well as school talk shows. Dissemination of information on topical environmental issues such as waste management, climate change and environment degradation has been the major factor. These projects have equipped children with environment management skills where they can easily identify environmental problems within their surroundings. According to one respondent schools are a major stakeholder as students play a major role in dissemination of information. This help them address these problems by carrying out projects such as waste sorting and recycling as well as reforestation programs. According to EMA respondent, “The Agency has witnessed positive results from these initiatives across the country. School children contribute much to litter as they lack knowledge on the impacts it has on the environment thus these initiatives have helped in ensuring that they gather more information and exposure on environment protection and sustainable environment management”.

2.11 Recycling of waste in Converting Trash to Cash

Recycling of waste is another initiative from the Environment Management Agency aimed at ensuring sustainable waste management. The Agency is working with several innovators who have identified a niche in using what others feel like discarding as their raw materials. Those who lack in technology and resources have identified opportunities in becoming tributaries to recycling entrepreneurs adopting waste recovery and collection as their core livelihood strategy by converting trash to cash. Companies such as Itachi Plastics, Thermoplastic Industries, Siyon Tradings, Waverly Plastics and PET Recycling Company of Zimbabwe (PETRECO Zim) have played a major role as the Agency stakeholders in waste management. According to industrial

respondent, “much of the activities that are done here are detrimental to the environment that is why we have come up with recycling strategies to ensure there is reduction in waste”.

EMA Acting Director Mr. Steady Kangata said his organization was promoting the cradle to the grave policy that obligates manufacturers to monitor the flow of their products on the market to the time that they are disposed of. Under this policy companies such as Delta should collect all the waste package their materials and recycle them. Kangata said the burning of items such as kaylites used for serving food in supermarkets and restaurants would be prohibited because they cause significant air pollution. The Agency has also proposed for the barring of kaylites in supermarkets and restaurants as they are causing high dumping of waste in public places. Different Community Based Organizations in areas such as Glen View and Highfield have took this initiative and participated in recycling practices. According to one respondent recycling has become a source of livelihood for a number of widowed women as well as those unemployed.

2.12 Vehicle Emissions Testing

The Agency has conducted programs of vehicle emissions tests during random roadblocks within high traffic prone areas around Harare South to curb the environment pollution from vehicles. According to respondent EMA conducts these tests in as a way to enforce the standards which enshrined within the Statutory Instrument 72 of 2009. Emission standards are legal necessities governing emissions or pollutants released into the atmosphere. According to EMA emission standards sets quantitative limits on the permissible amount of specific amounts pollutants that may be released from specific sources over specific time frames. They are generally designed to achieve air quality standards and to protect the environment. According to EMA respondent “vehicle test kits are used during these to determine the level of emissions from vehicles and this

initiative has helped in reducing air pollution. Failure by the vehicle to release the levels that are within the permissible limits will attract a fine to the motorists”. Thus the Agency urges all vehicle owners to ensure that their vehicles are well conditioned and run efficiently to reduce levels of pollution.

2.13 **Meetings and Workshops**

The Agency has carried out meetings and workshops on environment issues to curb environment problems through stakeholder participation. Meetings and workshops are of importance in sharing ideas and dissemination of important to the grassroots which mainly lack information and knowledge about environmental issues. Education on environment protection practices such as effective waste management, deforestation and dumping of waste is achieved through these workshops and meetings. These have been carried out in various parts around Harare where the Agency has engaged communities in meetings and workshops to do with sustainability

CHAPTER 3: EVALUATION OF THE EFFECTIVENESS OF PROGRAMS INTRODUCED TO CURB ENVIRONMENT PROBLEMS

Introduction

The chapter focuses on the effectiveness of environmental programs introduced by the Environmental Management Agency in the quest to tackle environmental problems in Harare to ensure sustainable environment management.

3.1 Effectiveness of EMA programs

The Environment Management Agency has put a remarkable effort and made a positive impact in promoting sustainable environment management in Harare South. There are several indicators that have shown progress on the environment front. The Agency has made a major step towards curbing environment degradation through setting up laws and regulations which protect the environment. Legislation has contributed to payment of fines and imprisonment of polluters thus reducing environment degradation. The law has ensured that polluting companies are fined through the polluter pays principle as a form of compensation for polluting the environment. Harare City Council is an example of those fined for polluting the environment. The Environmental Management Agency (EMA) Act states that no local authority operating a sewerage system or owner or operator of any trade or industrial undertaking operating within the jurisdiction of two or more contiguous local authorities shall discharge any effluents or other pollutants into the environment without an effluent discharge license issued by the EMA (Government of Zimbabwe, 2007). Statutory Instrument 6 of 2007: Section 5 (Effluent Solid Waste Disposal) clearly stipulates that no person shall dispose of waste or effluent into a public stream or into any other surface water or ground water, whether directly or through drainage or

seepage, except under a license. This means that even leakages from the system leading to pollution of water bodies would be viewed as deliberate disposal of sewage. According to EMA Act, pollution of water bodies is a criminal offence liable to a prison term not exceeding two years. However, facts on the ground show that no one has ever been prosecuted. The authority is only paying a lip service to the raw sewage outflow problem.

EMA has scored successes as an environment regulator and monitor. The Agency has monitored different industrial sites, public areas, retail shops and vehicle emissions. This has been a major step towards curbing environment degradation as pollution levels have decreased and air quality improved due to the responsible actors fearing stiff penalties. Monitoring of vehicles through vehicle emissions test has led to motorists repairing their vehicles which are surpassing the limit thereby ensuring less emissions from vehicles. However it has to be noted that these monitoring systems have not been efficient and effective. The monitoring exercises are not done on a regular basis and sometimes take months without being carried out. This has resulted in continuous pollution by heavy industries through chemical waste as they are not regulated by the Agency regularly. To add the Agency is also lacking in effective law enforcement. The enforcement of the environmental laws is not transparent hence large companies continue to pollute the environment. The Agency is failing due to Law enforcers such as Zimbabwe Republic Police ZRP have accepted bribes making it difficult for environment laws and regulations to be followed by the public. With continuous power shortages in Harare deforestation has increased but most of the perpetrators are left free as they bribe the law enforcers. Such practices have resulted in continuous environment problems as those who are found on the wrong side of the law are not properly punished with regard to their crime. Therefore though the Agency is putting more effort in environmental protection certain stakeholders are not coming in to ensure that the

initiatives are successful. Corruption also hinders success of domestic self-financing mechanisms through fines to replenish the Environmental Fund.

Environment laws and regulations pertaining dumping of litter, pollution, deforestation and have been put in place to ensure sustainability. Through these laws and punishment to those on the wrong side of the law EMA has scored some successes in environment protection. There has been successes Clean up campaigns which have also helped the situation in Harare South with litter being cleared in shopping centres and public places. Cleanness has been a major indicator of clean up campaigns and efforts to a clean environment. Stakeholders such as the Proudly Zimbabwe Foundation (PZF) came into the scene denouncing littering declaring that the end of 2013 would see a litter free Harare with the Bin It Campaign. According to EMA 70 Clean Up campaigns were recorded from January 2015 to September 2015 in Harare. This shows that the Agency has put a remarkable effort in preserving the environment and curbing degradation. However such effort has been let down by the increasing in littering by retail shops, vendors and the public. It is hard to notice those cleanup efforts now as it seems the litter problem has actually catapulted to unprecedented levels. EMA Acting Director Mr. Kangata said that clean up campaigns which the Agency has been conducting have also not been effective enough since people gather in what he called photo moments where participating groups or people just clean small places and got photographed and it ends there. The rate of littering per day seem to be very high contributing to more litter even a few days after a Clean Up campaign. The city continue to have litter everywhere as well as high pollution of land, air and water through various activities such as industrial processes, sewage effluent burning and dumping of waste.

The efforts by EMA through education have resulted in increased knowledge on environment awareness as a result of campaigns. This has led to a decrease in spread of diseases such as cholera and typhoid which had hampered most areas in 2008. Improvement in health as an indicator also shows the effectiveness of EMA efforts in ensuring sustainable environment management. The Environment Management Agency lacks resources in its efforts towards promoting a sustainable environment in Harare. Whilst the Environmental Management Agency is punitive it lacks adequate human and financial resources to enforce it. This Government body is poorly funded hence plagued by corruption. Funding has been a major setback to the proposed projects as they require more financial power to be implemented. Zimbabwe's government has failed to fund environment projects in Harare thus the Agency is left with failure to implement proposed initiatives due to lack of funds. Awareness campaigns, effective monitoring of industries and clean up campaigns require more finance thus with the Agency lacking resources it has failed to implement these initiatives towards sustainable environment management. The lack of finance is leading to monitoring activities being done after long periods making it difficult to assess the environment situation on a regular basis.

As a result of low funds the Agency is failing to recruit more people on the monitoring front. The lack of human resources who are supposed to be monitoring the environment in industries, vehicles and among the public is a factor which is making the Agency efforts ineffective. People continue to litter in public places as they are aware that it is rare to meet an EMA Officer. The manufacturing and processing industries and retail shops continue to dump waste and litter as they are not regularly inspected by the Agency because of its lack in both human and financial resources.

The Agency is also under funded which makes it become plagued with corruption. This has led to more pollution as anyone can pollute as long as they can pay some in EMA. There has been increase of desecration of land which are also being sanctioned by corrupt government officials. Land allocation on sensitive sites by corrupt officials has led to continuous environment degradation and failure of EMA efforts to ensure a sustainable environment.

The dumping of litter in public places as well as in the CBD has become normal to the general public. Laws and regulations in the Environmental Management Act seem to be unknown to the general public. There is also low level of environmental awareness among key law enforcement agencies such as the judiciary and police. However though people have become aware of the consequences through anti- litter stickers in public places and public transport they continue dumping litter everywhere making it impossible for the Agency to ensure a clean sustainable environment.

Service delivery on the part of responsible authorities such as the Local Authorities in particular the Harare City Council on waste management has been a challenge in EMA efforts to a sustainable environment. The Environment Management Agency EMA depend on the Harare City Council to collect waste and litter. With the HCC facing various problems such as malfunctioning trucks, fuel shortages litter and waste collection is very poor in Harare's suburbs and this leads to people dumping litter illegally. These challenges in urban waste management have continued unabated despite the existence of a conducive policy and legislative environment, which is provided for by, a number of policies and legislative instruments that deal with waste management issues, such as the Environmental Impact Assessment (EIA) Policy, National Sustainable Development Policy, Science and Technology Policy, and the Draft National Environmental Policy, Environmental Management Act (CAP 20:27), Urban Councils Act (CAP

29:15), Water Act (CAP 20:22), Public Health Act (CAP 15:09) and Municipal By-laws. The Harare City Council has thus let down EMA efforts as its failures in litter collection are resulting in illegal dumping in public places.

The challenge of waste management has greatly affected the Agency efforts towards a sustainable environment as this phenomenon is the major challenge facing the city of Harare. People have resorted to illegal waste dumping to get rid of household waste. The dumping of waste has become an everyday routine as it has become normal to the local people. This has thus made efforts such as laws and regulation, clean up campaigns and education and awareness campaigns become ineffective.

Continued failure of the Local Authority in this case the Harare City Council in sewage treatment and rehabilitation of sewer pipes is another factor which has contributed to ineffectiveness of EMA's efforts towards sustainable environment management. The Harare City Council has continued pumping raw and partially raw sewage in water sources for example Lake Chivero which is Harare's water supplier. This has led to massive pollution of the dam and rapid environment degradation thus posing a threat to EMA's initiatives in environment protection. Sewage bursts are the order of a day in Harare's residential areas particularly in high density suburbs such as Epworth, Glen View and Glen Norah. The City Council's failure to tackle this problem through rehabilitation of sewage pipes has led to massive land, water and air pollution in the affected area

Though the Environmental Management Agency has worked tirelessly in promoting a sustainable environment in Harare the government has not done enough to ensure that certain projects by the Agency are successful. Government officials have allocated land on sensitive areas such as wetlands and have contributed much to the illegal settlement around Harare. The

allocation of land on wetlands for example the one which has been developed by the Chinese in Belvedere named the Loncheng Plaza was not approved by EMA but the government approved its development. The Zimbabwe Tourism Authority Chief Executive Mr. Karikoga Kaseke stated that it does not matter whether that land is wet or not as the Chinese can build anything anywhere on this earth, when asked about why the authority had granted the Chinese a wetland for development. This shows that the responsible authorities are less concerned with environment protection thus the Agency initiatives become less effective. Therefore it can be noted that the Agency has done a lot in its power to ensure a sustainable environment but is also facing a challenge of lack of political will from the different government departments.

A key finding is that there is a serious disjuncture between the legal provisions and what happens on the ground in terms of the implementation of what is provided on paper. It is therefore important to build the capacity of the Government, members of the public, Civil Society Organizations (CSOs) and allied profession Furthermore, since there are no designated spaces for nature, the majority of small games tend to live by default in spaces left as open spaces. However, open space cultivation is a political matter for politicians in Harare. This is worsened by the fact that policymakers lack the political will to develop policies on open space cultivation, which they are supportive in their wards or constituencies. All this is in direct violation of not only the Council's standing by-laws, but the Regional Town and Country Planning Act, which in its definition of 'development', section 23, subsection (b), paragraph (iii) states that the use of urban land for agricultural purposes does not constitute land development (Government of Zimbabwe, 1996). Local politicians in Harare seem to be getting away with dual agendas, whereby they support open space cultivation in their constituencies or wards, but also support statutes that are opposed to open space cultivation in council chambers or parliament.

This is, in fact, a deviation from formally recognized urban land uses of commerce, industry, and housing and, most importantly, ecological regeneration. However, the fact that most planners view the practice as negative could be an asset to bank-on for ecological restoration and sound environmental stewardship.

EMA's laws are also not stringent enough to stop construction of houses on wetlands. The policy governing the management of wetlands has not been enforced and the Environmental Management Agency has no muscle to stop housing developments on the wetlands.

In addition, political interference is visible in many cases of wetland abuse in Harare. The abusers are well connected, politically. In several instances where the city of Harare did not stop a development, such connections helped to overrule the decision. This spells the effects of some underwriting in the institutions administering these locales.

3.2 What can be done to improve Harare environment

The environment problems in Harare South can be improved though concerted efforts and collaboration of different stakeholders. There is need to come up with solutions such as use of Indigenous Knowledge Systems, use of 3Rs Recycle, Reuse and Reduce, afforestation and reforestation.

The industrial sector and individuals must take responsibility in protecting the environment through adapting the 3Rs Recycle, Reuse and Reduce. There should be the adoption of renewable packaging bags and items for example the industries should abandon use of products such as kaylites and pumpers. There is need for collaboration among stakeholders such as NGOs and Industries to ensure that there is recycling of waste and waste reduction.

Indigenous knowledge can help promote biodiversity conservation by characterizing resource uses that are appropriate for the particular local landscape in fact, incorporating indigenous knowledge into conservation and development activities is believed to be an important mechanism for ensuring the most efficient and productive use of natural resources in the short-term without jeopardizing the long-term capacity of nature to continue producing these resources.

Indigenous Knowledge can help to develop sensitive and caring values and attitudes and, thereby promote a vision of sustainable future. Indigenous Communities have lived in harmony with the environment and have utilized resources without impairing nature's capacity to regenerate them. Their ways of living were sustainable. Indigenous knowledge shaped their values and attitudes towards the environment, and it is these attitudes and values which have guided their actions and made them sustainable.

RECOMMENDATIONS

The Environmental Management Agency (EMA) should engage industries, retail shops and the public and come with a concerted effort to deal with the rate of environment degradation in Harare. Different polluters especially the public and industry should also take responsibility in protecting the environment through proper waste management practices and adoption of environmental friendly activities such as conserving water, planting trees, recycling of waste. A bottom top approach should also be adopted in educating and environment programmes to ensure awareness to the public concerning environment conservation.

CONCLUSION

In conclusion, the country has been facing various environmental problems which include poor waste management, illegal settlements, land, air and water pollution, climate change and massive deforestation. Despite being a signatory to several Multilateral Environment Agreements most of the country's urban settlements are rapidly becoming degraded. The Environmental Management Agency has however collaborated with different stakeholders to reverse the environment degradation characterizing urban areas and ensure sustainability. Several programs have been put in place to curb environment challenges including awareness campaigns, vehicle emissions testing, clean up campaigns. However though the Agency has put efforts in promoting sustainable environment management challenges such as lack of political will, corruption and negligence of the Local Authorities have dragged these initiatives making them unsuccessful in practice.

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Appendix 1. Questionnaire guideline to individuals on the role of EMA in promoting sustainable environment management in Harare South.

Good morning/afternoon sir/madam. I am glad to meet you. My name is Ratidzo Mufara, an undergraduate student at Midlands State University doing Bachelor of Arts in

Development Studies, doing a research entitled the impact of the Environmental Management Agency (EMA) in promoting sustainable environment management. Particularly the research will be used for academic use only and will be kept confidential. Your help will be greatly appreciated.

1. Age 15 - 30 31-45..... 46- 90.....
2. How long have you been a resident in Harare
3. Are there any challenges the locals are facing due to environment degradation?.....
.....
4. What do you think are the causes of environment degradation?
5. Do you know EMA?.....
6. Have you participated in any environment conservation activity prior to EMA?.....
.....
7. What activity have you done?.....

The end

Thank you for your cooperation.

Appendix 2. Questionnaire guideline for the industrial sector on the role of EMA in promoting sustainable environment management in Harare South

Good morning/afternoon sir/madam. I am glad to meet you. My name is Ratidzo Mufara, an undergraduate student at Midlands State University doing Bachelor of Arts in

Development Studies, doing a research entitled the impact of the Environmental Management Agency (EMA) in promoting sustainable environment management in Harare South. Particularly the research will be used for academic use only and will be kept confidential. Your help will be greatly appreciated.

1. How long have your industry been operating in Harare?
2. What area do you specialize in?
.....
3. Do you think your activities affect the environment?
4. Do you know EMA?.....
5. In what ways do you know EMA
.....
6. What do you think the industrial sector should do to protect the environment?.....
.....

The end

Thank you for your cooperation.

Appendix 3. Interview guideline for the informal business sector on the role of EMA in promoting sustainable environment management in Harare South.

Good morning/afternoon sir/madam. I am glad to meet you. My name is Ratidzo Mufara, an undergraduate student at Midlands State University doing Bachelor of Arts in

Development Studies, doing a research entitled the impact of the Environmental Management Agency (EMA) in promoting sustainable environment management in Harare South. Particularly the research will be used for academic use only and will be kept confidential. Your help will be greatly appreciated.

1. How long have you been operational in Harare?
2. What kind of business do you operate?
3. In what way are your activities harmful to the environment?
4. Do you know EMA?
5. In what way do you know EMA?
6. What do you think the informal sector should do to protect the environment?

The end

Thank you for your cooperation.

Appendix 4. Questionnaire guideline for EMA Personnel on the role of the EMA in promoting sustainable environment management in Harare South.

Good morning/afternoon sir/madam. I am glad to meet you. My name is Ratidzo Mufara, an undergraduate student at Midlands State University doing Bachelor of Arts in

Development Studies, doing a research entitled the impact of the Environmental Management Agency (EMA) in promoting sustainable environment management in Harare South. Particularly the research will be used for academic use only and will be kept confidential. Your help will be greatly appreciated.

1. What do you think are the causes of environment degradation in the area?
.....
2. What challenges is the city facing due to environment degradation?.....
3. What measures have you put in place to face those challenges?.....
4. How effective are the measures which have been put in place for those challenges.....
5. What challenges are being faced by EMA in trying to ensure sustainable environment management in Harare?.....
6. What measures have the Agency put in place to face those challenges?.....

The end

Thank you for your cooperation.

