THE UNIVERSITY OF ZAMBIA

SCHOOL OF LAW

I recommend that the obligatory essay prepared under my supervision by:

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Entitled

ENVIRONMENTAL CONSERVATION IN ZAMBIA WITH SPECIAL REFERENCE TO SOLID WASTE MANAGEMENT

Be accepted for examination. I have checked it carefully and I am satisfied that it fulfils the requirements pertaining to format as laid down in the regulations governing obligatory essays.

Mr. F. Mudenda
(Supervisor)

27/01/07
Date

DECLARATION

I, **SIKWIBELE KABUKABU**, (Computer No. 21046786) do hereby solemnly declare that the contents of this directed research paper are entirely based on my own findings. The work used herein that is not my own, I have endeavored to acknowledge the same.

I THEREFORE take full responsibility for the contents, errors, defects and omissions therein.

19th January, 2007

Date

Signature

DEDICATION

This work is dedicated to my parents, the late **MR. KENNIOUS MUKENANI SIKWIBELE and MRS. JANET M. SIKWIBELE.**

Dad, you believed in me and that is what inspired me to strive on. Your words of encouragement which are a flame burning in my heart have made me soldier on. You wanted so much that I make it in life and achieve all my aspirations. I know and believe that you would have been proud to see me graduate.

Mum, you have strived to see me through University. You wanted the best for me even in the midst of hardships. You are a strong woman mum! You will forever remain my inspiration. Thank you for your love and support, your unflinching motherly-hood and for being there for me. I would never ask for a better mum because you are the best mum in the whole world. I will always love you.

I will lift up mine eyes unto the hills, from whence cometh my help. My help cometh from the Lord, which made heaven and earth.

Psalms 121: 1-2

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My unreservedly heartfelt gratitude and thanks go to **Chooka**, **Jennifer** and **Oga** (ba mooty) for your valuable time in helping me type this manuscript. **Steinford**, knowing you has added value to my life. **Rex** thanks for the moments we shared. **Kaizala**, thanks for the help you rendered to me- I am highly indebted. **Mary Goma**, **Lynne**, **Gracilia**, **Akaketwa**, **Sokwani** and **Chilala** you made my stay on campus worthwhile. Thanks for making life on campus memorable. **Kerrina** thanks for understanding me and the "talks". I care. **Bo Mwendabai** I don't know what would have become of me without you. To all my mates…you folks are too many to be listed but hey guys I love you all.

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ENVIRONMENTAL CONSERVATION

"The world today is faced with critical environmental problems. It is our responsibility as a human race to find possible solutions to these problems. Conservation includes both protection and the rational use of natural resources, and is essential if people are to achieve a life of dignity and if the welfare of present and future generations is to be assured."[1]

1.0. INTRODUCTION

Environmental conservation is important to human kind. This is because we are wholly reliant upon the environment in which we live. Conservation includes both protection and the rational use of natural resources and is essential if people are to achieve a life of dignity and if the welfare of present and future generations is to be assured. To create a balance in the environment, we need to exploit and utilise natural resources sustainably so that future generations can enjoy what the world will offer them.

The world has numerous environmental opportunities on which various human activities such as mining, hunting, or agriculture are based. The future of humanity therefore depends on the appropriate resolution of environmental problems as well as meaningful utilisation of environmental opportunities. The world today is faced with critical environmental problems. It is our responsibility as a human race to find possible solutions to these problems.

Zambia is endowed with abundant natural resources. These include land, mineral resources, water, animals, plants and micro-organisms. Natural resources are significant

[1] Caring for our Earth- A Strategy for Sustainable Living by IUCN & UNEP pg 1

industrial/commercial activities. Further, the system must provide for the protection of human health and the environment.[4]

1.1 ENVIRONMENTAL CONSERVATION DEFINED.

The word 'environment' stems form the French word "environs" which means surroundings. It is collectively used to include all the conditions in which an organism lives.[5] Black's Law Dictionary[6] defines 'environment' as the totality of physical, economic, cultural, aesthetic and social circumstances and factors which surround and affect the desirability and value of property and which also affect the quality of people's lives. The Environmental Protection and Pollution Control Act (EPPCA) provides under Section 2 that 'environment' means land, water, air and other external influences and conditions which affect the development and life of all organisms including man. It is the surrounding conditions, influences or forces which influence or modify. It means everything in the surrounding conditions of an organism that could possibly influence it. Consequently, environment means all the surrounding conditions which influence growth and development.

The natural environment includes air, water and land. Oxygen, carbon dioxide, nitrogen and other gases are essential components of the environment for life in general. On the other hand, conservation involves preserving habitats and protecting individual species of plants and animals. Section 2 of the Environmental Protection and Pollution Control Act

[4] National Solid Waste Management for Zambia
[5] Environmental Education Teacher's Manual 2000
[6] At p. 2

defines 'conservation' as the preservation of natural resources and their protection from misuse, fire or waste. Adjacent to that Black's Law Dictionary defines conservation as the concern which people have that nature be kept in as pristine a state as possible.

We are wholly reliant upon the environment in which we live and yet we seem to have lost sight of this fact. Species extinction is at a level never known before. At the same time forests, wetlands and grasslands are being altered and destroyed, upsetting the delicate balance of nature.[7] Conserving biological diversity is a slow but critical process not only for the maintenance of our quality of life but also for the generic resources contained within animal and plant species which form the basis of our continued existence.[8] To create a balance in the environment we need to exploit and utilise natural resources sustainably so that future generations can enjoy what the world will offer them.

There has been a lot of concern about the quality of the environment. This is because people affect the environment through their use of natural resources and production of wastes; the number of people on Earth, their distribution across the globe; consumption patterns and the technologies they use determine their effect on the environment. The many relationships between people and the planet are complex and defy simple explanations.[9] Environmental degradation is thus on the increase because of human activities.

[7] Environment in Print- Global Biodiversity (UNEP Report 1995)
[8] Ibid
[9] Unicef (Zambia) on Population and the Environment

"Pollution" means the presence in the environment of one or more contaminants in such quantities and for such duration and under such conditions as may cause discomfort to or endanger the health, safety and welfare of persons, or which may cause injury or damage to plant or animal life or property, or which may interfere unreasonably with the normal enjoyment of life or use of property or conduct of business.[10]Pollution is the action of making air, water and soil unfit for use. A pollutant is a substance that pollutes the environment. "Pollutor" means a person who contributes to or creates a condition of pollution.[11]Pollution is harmful. It affects all the elements on which life depends, for instance; the air we breathe is contaminated with industrial emissions from processing and power plants, emissions from vehicles and smoke from forest fires, and other air pollutants

It is necessary at this point to state that some factories and some motor vehicles release poisonous substances into the air. Factories produce smoke and sulphur dioxide while vehicles produce harmful lead compounds, carbon monoxide and the oxides of nitrogen which leads to smog.

The most important effect of air pollution is that it is a threat to human health. This has been marked by dramatic increase in pollution related deaths. Air pollution contributes to the upsurge of chronic diseases like emphysema, bronchitis and other respiratory

[10] Section 2 of EPPCA
[11] Ibid

ailments. Air pollution is also linked to high mortality from other illnesses such as cancer.[12]

In addition, the water that ensures the continued existence of all living things, plants and animals, is being continuously polluted through the application of chemical fertilizers, industrial effluents, domestic sewage and detergents. Therefore, human activity sometimes pollutes streams, rivers, lakes and even coastal waters. This affects the living organisms in the water and sometimes poisons humans or infects them with disease. Moreover, the land on which we depend for our food reserves has been degraded due to human activities such as over-cultivation (monoculture or monocropping). Land is also degraded by over-grazing and deforestation, climate change and loss of biodiversity *which is the variety of plant and animal life.*[13]

Moreover, the threat of extinction of many species has now reached a level never known before. In their ignorance, human beings have contributed to the destruction of many plant and animal species and vast areas of natural vegetation. Many animal populations are threatened because humans kill them for food, profit and even for purposes of recreation or 'sport'.[14] Over fishing has also reduced certain breeds of fish to the point where they cannot reproduce fast enough to keep up their numbers. Animals such as leopards and tigers have had their populations reduced to dangerously low levels by both legal and illegal hunting for their skins. The blue whale's numbers have been reduced

[12] Findley, R.W and Farber, D.A (1996) Environmental Law in a Nut Shell pg 99
[13] Environmental Education Teachers' Manual Curriculum Development Centre Lusaka 2000
[14] Murray, J. (1986) GSCE) Biology pg 265

from about 2, 000,000 to only 6,000 as a result of intensive hunting.[15] Everyday one species or other is either lost or threatened with extinction and within the next 20 years, at least 25 per cent of many forms of wildlife could be extinct.[16] It is projected that by the year 2025, the world might lose more than a million species of plants and animals due to human induced environmentally harmful activities. The list of lost and endangered species includes flora and fauna. 10 per cent of the temperate region species for instance, and 11 percent of the world's 9,000 bird species are threatened to extinction. In the tropics, deforestation threatens 130, 000 species that cannot be found in any other part of the world.[17] Moreover, destruction of the rain forests by multilateral sponsored projects has brought a lot of misery to local or indigenous populations whose sustenance depends on these forests. These people are no longer able to live in harmony with nature. Unless we control our consumption of the Earth's resources, limit our own numbers and treat our environment with more care and understanding, we could make the Earth's surface impossible to live on and so cause our own extinction.

There are a number of ways in which our environment can be conserved. The following suggestions are noteworthy: i) carrying out education campaigns on environmental conservation, for example, teaching people to use modern methods of farming such as ploughing across the slope, ii) showing films and videos to raise environmental awareness, iii) discouraging communities and companies from clearing forests, iv) preventing people from settling in forest reserves and also v) by giving incentives to communities and companies to plant trees and protect forests. Besides that, the

[15] Murray, J. (1986) GSCE Biology, p. 26
[16] Ibid at p. 279
[17] Environmental Education Teacher's Manual, 2000, p. 1

environment can be conserved by creating forest reserves, expanding national parks and by providing alternative sources of energy to replace fuel and charcoal, for example, by supplying electricity to people in rural and urban areas.[18]

Other ways in which the environment can be conserved is by taking effective action to conserve water and improve water supplies; and making effective national policies for all aspects of conservation. For example, controlling air pollution by removing defective cars which produce dangerous fumes and also by discouraging forest fires. Moreover, maintaining flood plains and clearing weeds from the Kafue and Zambezi Rivers to allow the smooth flow of water is another way in which the environment can be conserved.[19] Furthermore; the environment can also be protected by controlling industrial pollution by reducing factory fumes and having proper waste disposal systems and also by passing laws and regulations to monitor environmental degradation. Not only these, but also maintaining peace (because wars always have the potential to substantially damage the environment); providing adequate sanitation, especially in crowded places and rural areas, encouraging the use of environmentally friendly chemicals; monitoring the movements of oil tankers to guard against leakages; recycling used materials for future use and setting up waste treatment plants to control pollution can help conserve the environment.[20]

Population growth also needs to be controlled in order to match it with the available resources. Over-population results in deforestation, air pollution and land degradation.

[18] Civics Education Teachers' Manual pg 27
[19] Ibid
[20] OpCit

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[18] Civics Education Teachers' Manual pg 27
[19] Ibid
[20] OpCit

This means that the natural environment will be destroyed unless positive measures are taken to conserve it. Thus, family planning is necessary to conserve the environment as well as to achieve a higher standard of living for all.

In addition, it is worth noting that pollution can be reduced voluntarily or by passing laws which restrict the emission of pollutants. Pressure of public opinion has sometimes been effective in persuading factories to voluntarily cut down emissions of polluting gases or liquid effluent. However, to reduce pollution on a national scale, it is necessary to introduce legislation which set limits on the amounts of pollutants that may be released into the environment at any given time. These laws may be also extended to the imposition of penalties that may be applied if the prescribed levels are exceeded.

1.2. CARING FOR OUR ENVIRONMENT

Every citizen has a right to a clean environment.[21] The achievement of a clean and quality environment that would promote economic, social and cultural development requires concerted efforts from the government, the general public and the private sector. It goes without saying that a clean country promotes good health, attracts tourists and is environmentally friendly.

The aim of 'caring for the Earth' is to help improve the condition of the world's people by defining two requirements. One is to secure a widespread and deeply held commitment to a new ethic, the ethic for sustainable living, and to translate its principles

[21] National Environmental Action Plan (NEAP) Fundamental Principle

into practice. The other is to integrate conservation and development: Conservation to restrict our activities to those which are environmentally friendly; and development to enable people everywhere to enjoy long, healthy and fulfilling lives.[22]

Sustainable development depends on caring for the Earth. Unless the fertility and productivity of the planet are safeguarded, our continued existence is at risk. Scientists, environmentalists, and governments advocate for sustainable development – a strategy that integrates environmental and developmental concerns to pursue economic prosperity and social equity while preserving the environment for future generations.

The World has numerous environmental opportunities on which various human activities such as mining, hunting or agriculture are based. The future of humanity therefore depends on the appropriate resolution of environmental problems as well as meaningful utilisation of environmental opportunities.[23]

There are a number of difficulties and challenges that arise via the management of various types of waste. These difficulties have manifested themselves in the perennial outbreak of diseases such as cholera, dysentery and pollution of water resources, air, soil or land contamination, proliferation of pests and other vermin, and the loss of aesthetic beauty. Therefore, it must be emphasised that appropriate domestic environmental policies must be put in place. Besides that, the legal framework must be expanded to penalise any contrary behaviour. Moreover, improvements are desired in waste

[22] IUCN and UNEP on caring for the Earth – A Strategy for Sustainable Living, p. 3
[23] Environmental Education Teachers' Manual. 2000. pg 1

management covering aspects of minimisation of waste generation, collection, re-use, recycling, treatment and disposal. Zambia must rise up to challenge and make efforts to change the existing situation and thus addressing the problem caused by waste in our environment if the welfare of present and future generations is to be assured.

1.3. WASTE MANAGEMENT DEFINED

In Zambia, waste management, among others, has been identified as one of the major environmental problems faced by the nation.[24] It is on this area of environmental conservation that this study is based. Waste management in this study refers to the handling, separation, storage, treatment, collection, transportation and final disposal of waste.[25] Solid waste is defined under the Environmental Protection and Pollution Control Act as garbage, refuse, sludges and other discarded substances resulting from industrial and commercial operations and from domestic and community activities. This includes such classes of waste as hazardous waste including waste oils and waste water.

Problems are often created for human health and the environment by the inappropriate and often careless handling of both municipal and industrial waste including those that are hazardous. Consequently, a waste management system ideally consists of environmentally acceptable waste management practices that are aimed at minimising waste generation from both domestic and industrial/commercial activities. Further, the system must provide for the protection of human health and the environment.

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[24] National Solid Waste Management Strategy for Zambia- ECZ
[25] Section 2 of the Local Government Act Statutory Instrument No. 91 of 2004

It is also a known fact that sustainable development and natural resource management plays a vital role in the socio-economic development of a country. Therefore, the Government of the Republic of Zambia initiated the formulation of the National Conservation Strategy (NCS) in 1985 and subsequently the National Environmental Action Plan (NEAP) in 1994. In both these documents, waste management among others was identified as one of the major environmental problems faced by the nation. In addition, the Government revamped the environmental policy development process with a view to harmonise all the regulations and policies in the tourism, environment and natural resources sectors in September 2003. Furthermore, the National Policy on Environment of 2005 was formed to create an umbrella policy for the welfare of the nation's environment so that socio-economic development will be achieved effectively without damaging the integrity of the environment or its resources.

Therefore, the overall goal of this dissertation is to emphasise on the improvement of solid waste management by the use of an integrated Solid Waste Management System to address the problem of poor solid waste management, which over the years had far reaching effects on both human health and also the environment. Besides that, there must be put in place comprehensive legislation to this effect to create a regulatory framework to control future waste treatment, storage and disposal activities. Legislation must also be there to be retrospective by imposing civil liability upon past contributors to treatment, storage and disposal activities which currently present an "imminent and substantial endangerment" to health or the environment.

CHAPTER TWO

SOLID WASTE MANAGEMENT IN ZAMBIA

"Waste management has now emerged as a dominant urban environmental issue. Most cities in developing countries are grappling with the problem of collection and safe disposal of various types of waste.[26] *Likewise, environmentally sound management of increasing amounts of waste is becoming more and more important in many rural communities in developing countries.*[27] *"*

2.0 INTRODUCTION

Although still a relatively new issue in environmental protection, waste management has come to the forefront of political agendas in an increasing number of countries.[28] Waste management has now emerged as a dominant urban environmental issue. Research shows that rapid urbanization is occurring in many countries, particularly those of the third world, and often results in unsanitary conditions in low cost settlements that develop. In rural communities too, environmentally sound management of increasing amounts of solid waste has become very important. In essence, the management of various types of waste has over the years been a very difficult and challenging issue. As already alluded to, this difficulty has manifested itself in the perennial outbreak of diseases such as cholera, dysentery and pollution of water resources, air, soil or land proliferation of pests and vermin and loss of authentic beauty. As the amount of waste increase, its pollution potential increases. The need therefore to have information on waste management in

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[26] Livelihood From Solid Waste in Lusaka City: Challenges and Opportunities. A Survey Research Report by Matenga, C. R and Muyakwa, S. L. DS Dept. UNZA, p. 1

[27] Greupner, P. (2000). **Primer Integrated Waste Management for Rural Communities**, p. 1

[28] Matenga, C. R and Muyakwa, S. L, ibid. p, 2

Zambia and solutions to the waste situation cannot be overemphasized. The logical starting point for solid waste management is to reduce the amount of waste that must be collected and disposed off.

2.1 BACKGROUND TO WASTE MANAGEMENT IN ZAMBIA

In Zambia the management of Municipal solid waste has emerged as one of the major environmental concerns in both urban and rural areas, particularly in Lusaka, the Capital city. Lusaka city was founded in 1913. It was until the mid 1970s, one of the cleanest cities in the region with efficient solid waste and hospital waste management systems in place. These were left over by the colonial masters and were efficient because they catered for a small population. Over the years, Lusaka has experienced, and is still experiencing rapid growth in population. It is the fastest growing city in the country with a growth rate of up to 6.2% per year.[29]

Due to the waste situation in the country, concern grew among some citizens and interest groups and thus, they tried to make efforts to curb the situation. For example, in the mid of 1994, the Volunteer Agency Coordinating Committee (VACC) commissioned a team of two consultants to carry out a survey to identify basic and long term solid waste management problems in Lusaka and to put forward a possible workable solution. In July 1994, the VACC commissioned another team to look into the concerns of solid waste management problems in the country by starting with Lusaka and further. It was found that the overall Lusaka city solid waste production is an issue of great concern and 10-12

[29] **Waste Management in Lusaka** by Mutale, S. B. Dept. of Civil and Environmental Engineering- UNZA. May, 2000, p. 1

percent was collected. Solid waste production given the population of Lusaka which had 1.6 million people each producing an average of 0.90kg per day, meant that the average waste production for the City of Lusaka was 1,440 tones per day.[30]

Solid waste production in most parts of the city of Lusaka is part of a major cause of epidemic outbreaks. The solid waste collection is done at its very lowest minimum if any at all. The solid waste generated in the peri-urban (unplanned settlements) is actually never collected except in very isolated cases, that is, under political directives and usually in a semi decomposed state.

Moreover, environmental problems in Zambia that may be caused by hospital waste cannot be let alone. Hospital waste in this study refers to waste produced from an institution providing medical and surgical treatment and nursing care for ill or injured people.[31] It is classified as hazardous. Hospital waste has been identified to be a very special type of waste that requires very specialized handling techniques given its sensitive nature that is, laboratory, surgical, gynaecology waste. Currently, the hospital waste is handled just like any other solid waste raising a lot of concern with the high possibility of spreading diseases.

[30] A survey on Solid Waste Management by Simwanda, L. S. (1994), p. 1
[31] Hospital Waste Management in Lusaka by Stephen Bwalya Mutale. Dpt of Civil and Environmental Engineering UNZA pg 1

2.1.0 An Overview of the Current Status of Waste Management

Generally, the current waste management situation leaves much to be desired. Wastes generated from all sectors of the economy are currently not well managed. Taking the Lusaka situation as a reference point, less than 14% of the waste generated in the urban centres finds its way to the disposal sites.[32] The waste streams include domestic, commercial, industrial and hazardous waste. A recent case to be cited is that of the George Compound residents of Lusaka who complained about the bad waste situation in their area and thus, urged the authorities to provide disposal sites for the uncollected garbage.[33] At the moment, there is no available data on radioactive, agriculture and chemical wastes. In addition, there is generally inadequate data for other waste streams especially for areas outside Lusaka and the Copperbelt.[34]

2.2 TYPES OF WASTE

The Environmental Protection and Pollution Control Act (EPPCA)[35] defines waste under section 47 as garbage, refuse, sludges and other discarded substances resulting from industrial and commercial operations and from domestic and community activities but does not include waste water. Waste includes the following substance and any combination thereof which are discarded by any person or are accumulated or stored by any person for the purpose of recycling: (a) undesirable of superfluous by-products; (b) residue or remainder of any process activity; (c) any gaseous liquid or solid matter.[36]

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[32] National Waste Management Strategy for Zambia: ECZ p. 4
[33] MUVI TV MAIN NEWS, 28/10/06
[34] ECZ, ibid. p. 4
[35] CAP 204 of the Laws of Zambia
[36] Section 2 of the Botswana Waste Management Act (10b) Section 2 of Statutory Instrument No. 91 of 2004, The Local Government Act. The Lusaka City Council (Municipal Solid Waste Management) By-laws, 2004

Thus waste means any substance or objects that the owner discards or obliged to discard.[37] Thus waste means any substance or subject that the owner discards or is obliged to discard. Waste can be classified into different kinds and types. These range from municipal solid waste or general waste to domestic or household waste. Other kinds of waste include commercial waste, institutional waste, industrial waste and also hazardous waste. Municipal solid waste means solid waste generated by human activity in an urban environment but does not include hazardous waste.

Section 47 of the EPPCA provides that hazardous waste means waste which is poisonous, corrosive, irritant, explosive, inflammable, toxic or harmful to man, animal, plant or the environment. Hospital waste or clinical waste is classified as hazardous. Hospital waste refers to waste produced from an institution providing medical and surgical treatment and nursing care for ill or injured people. Therefore, clinical waste means (a) waste which unless rendered safe, may prove hazardous to any person, animal or plant coming into contact with it, arising from human or animal tissue, blood or other body fluids, excretions, drugs or other pharmaceutical products, radioactive materials, swabs or dressings, microbiological cultures and potentially infected waste from pathology departments or syringes, needles or other sharp instruments; (b) any other waste which may cause infection to any person, animal, or plant coming into contact with it arising from-

i. Medical, nursing, dental, veterinary, pharmaceutical or similar practice;

ii. Investigation, treatment, care, teaching or research; or

[37] Sec 2 of the Local Government Act Statutory Instrument No. 91 0f 2004-The Lusaka City Council (Municipal Solid Waste Management) By-Laws

iii. The collection of blood for transfusion [38]

Household waste or domestic waste means waste from any building used wholly for the purpose of living accommodation or a residential home. Hence, this category of waste comprises mainly of wastes that are generated from household activities. This normally includes such materials as waste paper, plastics and wood off cuts, kitchen waste and yard waste. Currently there is no separation of the various types that constitute this category. The waste components are usually mixed and dumped in places that are not designated for disposal. Much of this type of waste is generated from residential areas and at the moment less than 10% on average of residential areas in the country are serviced as regards waste management. The percentage could be a little higher on the Copperbelt especially the mining townships. Most of the mining townships have a defined waste management system. This is mainly due to the presence of programmes driven by AHS-MMS.[39] The waste management system on the Copperbelt mining town as alluded to above, is well defined as compared to other towns in the country. There is however need to streamline the system to ensure that there is increased coverage.

On the other hand, "commercial waste" means waste from premises used wholly or mainly for the purpose of a trade; business, sport, recreation, entertainment or as local or central government offices. In simple terms, 'commercial waste' is the waste stream that is generated from commercial and business houses.[40] It will normally compose of such materials as discarded office paper, cardboard, plastic and general packaging waste. The

[38] S. 2 of Botswana Waste Management Act
[39] National Waste Management Strategy for Zambia: ECZ
[40] Ibid

management of this type of waste like for domestic waste is also not well defined. This is exhibited by the presence of piles of uncollected waste in most of the town centres.

Institutional waste is waste from premises forming part of a University or school or other educational establishment. As for industrial waste, this is waste from any premises used for purposes or in connection with the provision to the public of transport services by land, air or water; used for purposes of or in connection with the supply to the public of gas, water, electricity or the provision of sewerage services; used for purposes of or in connection with the provision to the public of postal or telecommunication services; forming part of a hospital or nursing home; and that are subject to a license to manufacture under the law.[41] Consequently, as this is waste generated from industrial production processes, types in this category include such wastes as industrial-sludge from factories, manufacturing facilities and refineries. It also includes food processing waste and water treatment filter cake sludge. Other types would include ash from industrial combustion processes. This waste stream also covers waste from mining activities.

2.3 CAUSES OF WASTE

A healthy environment is essential to the well being and healthy of the planet earth and its inhabitants. The state of the world's environment is of growing concern. There are so many problems facing the environment. It is being degraded by the day due to many supervening factors. These include sewage and waste which affect all of us. Waste in the country is caused by a number of factors. These are such as urbanization. The crowding of growing populations into the towns leads to problems of waste-disposal. The sewage

[41] S.2 BWM Act

and domestic waste from a town of several thousand people can cause disease and pollution in the absence of effective means of disposal.[42] This waste covers household left-overs of food, dirty, paper, tins, bottles, plastic containers, old clothes. The 2000 census of population and housing estimated the population of the country to be 9.9 million, with an annual population growth rate of 2.4%. Therefore, Zambia is one of the most urbanized countries in sub-Saharan Africa, with about 35% of the population living in urban areas.[43]

Moreover, waste is caused by people littering the streets and waste from market places. In addition, municipal solid waste disposal problem is caused by lack of garbage collection by the council; lack of garbage sites; inadequate measures and methods of waste disposal; and a weak legislation with regard to solid waste disposal. For example, most developing countries still lack adequate Environmental quality legislation. Even where it exists, like in Zambia, to some extent, enforcement is lacking and sometimes non-existence. In fact in most developing countries pollution control is low of priority, compared to industrial production and Economic growth.

Furthermore, the environment's present deterioration has come about mainly as a result of human activities, especially those concerned with industrialization. In some cases, an increasing population is accompanied by an increase in manufacturing industries which produce waste products which damage the environment.[44] It is interesting to note that

[42] MacKean, D. G. (1986), **GCSE Biology**, p. 264
[43] The Mung'omba **Constitution Review Commission Interim Report**. p. 14
[44] MacKean, D. G, ibid, p. 264

over two hundred years industrial processes have been responsible for the pollution and degradation of air, water and land.

Toxic or poisonous waste comes from factories, chemical industries, manufacturing sites and nuclear power stations. Nuclear waste is the most dangerous and where to store it is a big headache. Some countries have drums of toxic waste buried in unknown places lest people become worried. Other toxic wastes prove difficult to dispose off and thus big business has been formed in some parts of the world for the same. One company had shiploads of toxic waste which were dropped into the sea, part of it near Haiti and part in an unknown part of the Indian Ocean. Dangerous industrial waste from some western countries was dumped on the West African coast with the consent of the people and they were paid. There is now an international treaty on trade in waste.[45] There is an ongoing resistance to people dumping waste in other people's areas.

2.4 EFFECTS OF WASTE

It is true to say that nature deals with a normal amount of waste. The waste rots and is converted into nutrients and improves the soil. However, the great increase in population especially in cities has overtaken nature's capacity to neutralize waste. The country is faced with a critical waste management problem, which is threatening the healthy of the people of Zambia, socio-economic development as well as the environment. For example, hazardous waste may cause, or significantly contribute to an increase in mortality rates or an increase in serious irreversible or incapacitating irreversible illnesses. It is also able to

[45] McGiven, S. J, (1992), **Who Cares?**, p. 39

pause a substantial or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.[46]

The everyday wastes that accumulate in homes and sewage disposal have their own effects. Uncontrolled throwing away and the heaping of household garbage, especially where rotting food is included, attracts rats and other vermin leading to disease. Large cities have a problem. Tons and tons of garbage have to be got rid of each day. In 1989, for instance, London with a population of 8 to 9 million people discovered that the garbage of the city brought an increase of 30% in rats in one year. It was the brown rat that brought the BUBONIC plague to Europe in the 14th century, killing a quarter of Europe's population.[47]

Moreover, the increase of the world population is not only outstripping the limited fresh water stock but is also poisoning the liquid that sustains all life. The water that is available is often contaminated by sewage and industrial waste, exposing those who drink it to disease. Shortage of water means for many epidemics, hunger, disease and death. The United Nations once estimated that of the 40,000 children who died everyday, many of them were victims of diarrhoea, cholera and other side effects of the water crisis. Consequently, dumping garbage into streams and rivers pollutes the water which can cause cholera among other diseases. To bury garbage near wells and other water resources can often cause seepage when it rots. In Hungary for example, 800 villages were so affected by wells being contaminated by nitrates from fertilizers that drinking

[46] Findley, W. R. & Farber, D. A, (1996), **Environmental Law in a Nutshell**, p. 209
[47] McGiven, S. J, ibid. p. 39

water had to be bought in plastic bags from outside.[48] Sewage disposal and hospital waste are other high points.

In addition, water pollution arises from the discharge of industrial, agricultural, and human wastes into fresh waters, estuaries, and seas. This may result in the poisoning of aquatic organisms or the reduction of oxygen due to excessive growth of micro-organisms which makes less of the water habitable for fish- this happens through a process known as eutrophication.[49] Moreover, pouring industrial waste and sewage into rivers as well as animal waste, and leaving human excreta near or in water sources makes water undrinkable and kills the fish life. For instance in Japan, in the 1950s illness and even death occurred among the fishermen who consumed fish, contaminated with methyl mercury from Japanese coastal industries. Besides that, solid waste like mercury, which may be dumped into the rivers, ultimately goes into the sea.[50] Millions of tons of industrial waste are poured into the sea each year. The sea can deal with a certain amount but if overloaded, pollution would occur somewhere. Furthermore, improper sewage disposal can seep through into wells and underground water sources.

Furthermore environmental degradation exacerbates poverty as the environment can no longer sustain livelihoods. At the same time, the poor are affected by the way others around them use environmental resources. For example, the urban poor are affected by poor environmental services such as inadequate or polluted water, lack of sanitation and solid waste systems and outdoor air pollution. Thus the link between poverty and the

[48] Ibid. p.40
[49] Notes on Natural Resources Management; School of Natural Sciences. UNZA PG 8
[50] Ibid pg 10

environment is characterized as a "vicious circle" or a "downward spiral". The need to maintain a balance between human socio-economic activities that affect the environment, environmental conservation and utilization of natural resources poses a serious challenge.[51]

Consequently, as careless dumping of waste has a lot of negative effects, we need to keep our environment clean because those of us alive at present owe future generations a healthy environment to survive and live in.

2.5 POLICY BACKGROUND OF WASTE MANAGEMENT IN ZAMBIA

Policy relates to myriad techniques at the disposal of Government to implement their objectives. In Zambia the management of municipal solid waste has emerged as one of the major environmental concerns in the country. It is also a known fact that, sustainable development and natural resource management plays a vital role in the socio-economic development of a country.[52] In this regard, the government of the Republic of Zambia (GRZ) enacted legislation such as the Environmental Protection and Pollution Control Act (EPPCCA) amended in 1991, CAP 204 of the Laws of Zambia which established the Environmental Council of Zambia (ECZ) to provide for the control of activities related to environmental protection. The Ministry of Environment and Natural Resources created the Environmental Council of Zambia (ECZ) in 1994 to manage the environment and

[51] Mung'omba Commission Interim Report pg 786
[52] **National Solid Waste Management Strategy for Zambia**, ECZ

create public awareness about emerging environmental problems. A number of programmes have been designed hitherto. In 1993, regulations for the licensing of transporters of waste and operators of waste disposal sites came into effect whilst the regulations governing the control of hazardous waste was signed in 2001.[53]

Before the enactment of the EPPC Act, there has been initiated through the National Conservation Strategy (NCS) of 1985, to identify measures for improving waste management. Furthermore, the National Environmental Action Plan (NEAP) 1994 also identifies waste as a key environmental problem. The main objective of the NEAP is to integrate environmental concerns into social and economic development planning resources.[54] The National Conservation Strategy (NCS) and the National Environmental Action Plan (NEAP) are the precursor of the overall policy on environment. In both these documents waste management among others was identified as one of the major environmental problems faced by the nation. This National Solid Waste Management Strategy (NSWMS) is a vital document that proposes integrated approaches to addressing the problem of poor solid waste management, which has had over the years far reaching effects on both human health and also the environment.

The National Solid Waste Management Strategy (NSWMS) was developed on the premise that if systematic improvements were introduced at the various stages in the waste cycle (from generation to disposal), the quantity of waste generated at each of the subsequent stages would be considerably reduced. Employing a multi-sectoral integrated

[53] Ibid. p. 1
[54] Op cit. P. 1

and holistic approach involving all the key stakeholders, the problems of poor solid waste management would be resolved.[55]

It is important to note that the development of this strategy was through consultative process involving all the major stakeholders. Through the consultative process, a number of objectives were formulated such as to minimize the generation of waste; to maximize waste collection efficiency; to reduce the volume of waste requiring disposal and maximize the economic value of waste; to develop and adapt environmentally sound treatment and disposal facilities or practices.[56] Therefore consistency with the agenda 21 and the world summit on sustainable development, the NSWMS is formulated to achieve; enhanced protection of the environment and control of pollution; Promotion of sustainable waste management practices; protection and preservation of human health and rational utilization of natural resources so as not to disadvantage future generations.[57]

In order to achieve the objectives stated above, the strategy as earlier alluded to was to employ an integrated approach which would encompass cleaner production technologies. To this effect, the strategy would utilize the internationally accepted waste management hierarchy. Further, the strategy would utilize the following principles: polluter pays principle, integrated life cycle principle, source reduction principle, precautionary principle and the principle of cooperation. The government is cognizant of the importance of the private sector in achieving the objectives of the strategy.[58] This point

[55] National Solid Waste Management Strategy, ECZ. Sept. (2004), p.1
[56] Ibid, p. 1
[57] National Waste Management Strategy for Zambia: ECZ
[58] Ibid, Sept, 2004

cannot be overemphasized only to state that the achievement of a clean and quality environment that would promote economic, social and cultural development requires concerted efforts from the government, the general public and the private sector.

The achievement of the goals and objectives of this strategy would be very significant to the enhancement of tourism in the country and thereby bring in foreign exchange. Furthermore, this would lead to the creation of employment not only in the tourism industry but also in the waste management field and other related industries.[59] Thus the strategy should be viewed as a contribution to poverty reduction and job creation.

In order to meet the challenges of environmental and development, the government of the Republic of Zambia with technical assistance from the government of Norway, through the Norwegian Agency for International Development (NORAD) initiated a six-year industrial pollution prevention programme (IPPP) in 1997. The main objective of the IPPP was to increase capacity for pollution prevention and monitoring in industry and the Environmental Council of Zambia (ECZ). During the second phase of the IPPP, which started in 2000, it became imperative that to improve the waste management situation a strategy had to be developed and put in place. In addition, the IPPP provided support to an emerging specialty of cleaner production (CP) which emphasized on reducing the amount of waste arising from an industrial process so that resources are conserved, and thereby reduce the amounts that end up in the environment as waste. The waste

[59] Ibid.

management hierarchy, mainly implementing waste minimization/ reduction before reuse and recycling, treatment and disposal, is vital to the success of the strategy.[60]

In September 2003, the Government revamped the environmental policy development process with a view to harmonize all the regulations and policies in the tourism, environment and natural resources sectors. Government is also working towards the domestication of the international environment conventions it has ratified.[61]

Moreover, to avoid conflict of interest, to harmonise sectoral strategies, to rationalise legislation that concern the use of management of land, water and natural resources and to attain an integrated approach to development through a national cross-cutting consensus, it was recognised by the Government that the National Policy on Environment (NPE) of 2005 should be promulgated. It was expected that the policy would be developed through a comprehensive research and consultative process that would be fully integrated in principles of decentralisation, community participation and privatisation that underpin sustainable development. It was agreed that a national policy to safeguard the environment was required and increasingly relevant. It would ensure that the use of natural resources would be kept within sustainable levels that the waste and unavoidable impacts would not cause excessive damage and that society as a whole would take on responsibility for measures needed to meet the objectives. Essentially, the National Policy on Environment of 2005's purpose is to create an umbrella policy for the welfare

[60] Op Cit.
[61] Zambia Development Goals Report 2003

of the nation's environment so that socio-economic development will be achieved effectively without damaging the integrity of the environment or its resources.

However, it has been argued that the solid waste management options proposed by the National Environmental Action Plan (NEAP) of 1994 are largely the conventional "Western" approach. The management options proposed by NEAP have left out the community based initiatives to waste management that involve recycling and re-use.[62] Besides that no monitoring or enforcing body is in existence for any kind of waste. If such a body exists then it is certainly inactive, as is the Environmental Council of Zambia. This has resulted in the Environmental Protection and Pollution Control Act being contravened unchecked. The background to this study is, therefore, to assess the current status and potential of waste picking, collection and other measures as strategy to waste management problems in Zambia.

2.6 Conclusion

Consequently, if the environment is to remain safe for human habitation, waste likely to endanger such safety must be safely disposed off. This is because what we have today is not just for ourselves but must be handed down to our children and their children in good working order.

[62] Livelihood From Solid Waste in Lusaka City: Challenges and Opportunities. A survey Research Report by Matenga, S. L DS Dept. UNZA

CHAPTER THREE

"The chapter on Directive Principles of State Policy in the Constitution should include provisions that the State should assure a healthy environment for all and safeguard the ecological balance"- the Mwanakatwe Commission

3.0 INTRODUCTION

Waste Management is guided by the objectives of the laws protecting man and his environment. The aim, primarily, is to ensure that man and his environment are not harmed by waste disposal, either now or in the future. Besides, the values of health and the quality of the environment are of prime importance in waste disposal. Therefore, the financial outlay must be in line with these values.

Consequently, in accordance with the principle of 'prevention'[63] measures must be taken before damage occurs to man or the environment. For this reason, there must be an adequate legal framework and policy that should govern, guide and punish the careless and irresponsible disposing of waste with a view of reducing and/or preventing or controlling the incidences of waste disposal. An enforcement mechanism that would act as a watchdog with regard to waste management offenders should also be put in place. The existing legislation on waste management must therefore be studied and the monitoring protocols should be assessed. However, there must not only be a monitoring body in place but one that would give stringent penalties to offenders and thus reducing the number of, and also cartelling the other members of society from disposing waste

[63] National Solid Waste Management Strategy (NSWM)

carelessly. In essence, the aim is to create policy awareness and give a challenge to all Zambians to care for our environment for a better Zambia now and in the future.

3.1 THE OPERATIONAL LEGAL AND REGULATORY FRAMEWORK OF WASTE MANAGEMENT IN ZAMBIA

Zambia has recognized the need for a strengthened legal framework to the management of waste. It can be suggested that, this is so because laws such as Nuisance Law fails to provide a systematic mechanism for supervising pollutant discharges. In this regard, the Environmental Protection and Pollution Control Act[64] (EPPCA), which is a result of the recommendation of the National Conservation Strategy (NCS) to have legislation that encompasses all environmental aspects, forms the basis of the framework. Within this framework, all stakeholders will have a role to play, with local authorities playing a key role in the formulation of by-laws and regulations in their areas of jurisdiction. It was also recommended that the 'Polluter Pays' Principle and similar such principles shall guide this process.[65] The 'Polluter Pays Principle' states that each of us is responsible to pay for cleaning up the mess we make. This includes paying for cleaner fuel, for the responsible disposal of garbage, for cleaner mines and industries and mechanisms for rehabilitating degraded or damaged ecosystems, such as afforestation or re-introducing of locally extirpated species.[66]

As a result, this framework reflects the National Environmental Action Plan (NEAP)'s fundamental principles of:

[64] CAP 204 of the Laws of Zambia
[65] Environmental Council of Zambia: National Solid Waste management Strategy for Zambia
[66] National Policy on Environment. Zambia May 2005

1) The right of the citizens to a clean environment;
2) The participation of local communities and the private sector in natural resource management; and
3) Obligatory Environmental Impact assessment (EIA) of major development projects in all sectors.

3.1.0 THE ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL ACT (EPPCA) 1990

The Environmental Protection and Pollution Control Act No. 12 of 1990 was enacted by the Parliament of Zambia on 23rd July 1990. It is the principal law on environment. The Act was passed to provide for the protection of the environment and the control of pollution; to establishment the Environmental Council and to prescribe the functions and powers of the Council; and to provide for matters connected with or incidental to the foregoing.[67] The EPPCA provides for the requirements for handling waste such as the licensing or permitting process for collection, transportation, treatment and disposal of waste.

Part IV of the EPPCA is the part which caters for waste in the Act. Section 48 of the Act provides that the Environmental Council of Zambia (ECZ) is required to give specific or general directions to District Councils regarding their functions relating to the collection and disposal of waste operations under the Local Government Act. The Environmental Council must formulate and provide standards on the classification and analysis of wastes and formulate and advise on standard disposal methods and means. It must also regulate

[67] Preamble of EPPCA

the handling, storage, transportation, segregation and destruction of any hazardous waste, control the export and generation of hazardous waste and also provide for the monitoring and regulation of any waste disposal sites. It is the Council's responsibility to publicize the correct means of storage, collection and disposal of any class of wastes.

Still under section 49, it is the duty of the Environmental Council to monitor the contamination and degradation of the environment arising from the operation of any disposal site and also to monitor the safety and health of workers at disposal sites. It is also the responsibility of the Environmental Council to provide for members of the public to make representations to the Council on any matter arising from Part IV where the matter may have an influence on the health or aesthetic value of their surroundings. Moreover, the Environmental Council is required to initiate and undertake research into problems relating to the collection, storage, transportation and disposal of any class of waste and also to maintain statistical data on the nature, quantity and volume of waste generated, and on sites and waste processing where waste disposal is taking or has taken place and to provide technical and advisory services to waste operators. The Environmental Council must also enforce rulings made under Part VI and do all such things as appear to be reasonably necessary for the monitoring and control of waste.

The EPPCA provides under section 50 that no person shall discharge waste so as to cause pollution in the environment. It is also prohibited to transport waste to any site other than in accordance with a license or to a disposal site established in accordance with a license.

Moreover, no person shall operate a waste disposal site or plant or generate hazardous waste without a license.

According to section 51 of the EPPCA, the inspectorate may, on application, grant a license to generate hazardous waste or operate a waste disposal site or plant subject to such conditions, if any, as it may impose. If a license is not granted, the notice of refusal shall state the reasons. Any person intending to operate a waste disposal site or plant or generate hazardous waste, or whom the inspectorate so requests, shall apply in writing to the inspectorate for a license.[68] An application for a license to operate a waste disposal site shall only be granted where the applicant has obtained approval of the Town and Country Planning Authority.[69] Any person who owns or operates a waste disposal site or plant or generate hazardous wastes before the commencement of the Act shall apply for a license within six months after the commencement of the Act.[70]

Furthermore, the Council shall by an order made by a court immediately stop any hazardous waste generation, handling, transportation, storage and disposal activity which presents an imminent and substantial danger to health and the environment. No person, according to section 56, shall import any hazardous waste in Zambia; neither shall the same be exported to any country without a permit from the Council and the consent of the receiving country nor shall it be transported within or through Zambia without a permit from the Council.

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[68] Section 52 of EPPCA
[69] Section 52(2) of EPPCA
[70] Section 53 of EPPCA

3.2 OTHER SUPPORTING PIECES OF LEGISLATION

3.2.0 The Public Health Act (1978)

The Public Health Act is another piece of legislation associated with waste management in Zambia. It is an Act to provide for the prevention and suppression of diseases and generally to regulate all matters connected with public health in Zambia.[71] Under section 65, the Act provides that it shall be the duty of every local authority to take all lawful, necessary and reasonably practical measures for maintaining its district at all times in a clean and sanitary condition, and for preventing the occurrence therein of, or for remedying or causing to be remedied, any nuisance or condition liable to be injurious or dangerous to health, and to take proceedings at law against any person causing or responsible for the continuance of such nuisance or condition.

Moreover, it shall be the duty of every Local Authority to take all lawful, necessary and reasonably practicable measures- for preventing any pollution dangerous to health of any supply of water which the public within its district has a right to use and does use for drinking or domestic purposes (whether such supply is derived from sources within or beyond its district). Furthermore, every Local Authority shall have the duty to take all lawful, necessary and reasonably practicable measures for purifying any such supply which has become so polluted; and to take measures (including, if necessary, proceedings at law) against any person so polluting any such supply or polluting any stream so as to be a nuisance or danger to health.[72]

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[71] Preamble of Public Health Act, CAP 295 of the Laws of Zambia
[72] Section 78(a) and (b) of CAP 295

3.2.1 The Local Government Act No. 22 of 1995

The Local Government Act No. 22 of 1995 is one other supporting piece of legislation in the field of waste management in Zambia. Its area of coverage is the establishment of Local Authorities and local government administrative system. It provides for maintenance of drains, sewers and so on. Consequently, section 61 provides that subject to the provisions of the Act, a Council may discharge all or any of the functions set out in the second schedule. The functions of a Council as outlined in the second schedule, in part, are to take and require the taking of measures for the conservation of natural resources. In addition, the Council shall be required to establish and maintain sanitary convenience and ablution facilities, and to require, whenever necessary, the establishment and maintenance of such facilities.[73] And more, the Council shall be required to establish and maintain sanitary services for the removal and destruction of, or, otherwise dealing with, all kinds of refuse and affluent, and compel the use of such services. The Council also has the duty to establish and maintain drains, sewers and works for the disposal of sewage and refuse.[74]

3.2.2 The Ionizing Radiation Act (1975)

The Ionizing Radiation Act of 1975 is also a piece of legislation associated with waste management in Zambia. Its coverage area is the protection of the public from dangers of ionizing radiation. It regulates production and use of radioactive material.

[73] Section 50 of the second schedule of CAP 281
[74] Section 50 and 52 in the second schedule

3.2.3 The Mines and Minerals Act No. 8 of 1997

The Mines and Minerals Act is a supporting legislation in the field of waste management in Zambia. It covers aspects of granting, removal and termination of mining rights. To be specific, Part IX looks at environmental protection. The Act provides under section 75 that in deciding whether or not to grant any mining right, the Minister shall take into account the need to conserve and protect the air, water and soil, flora, fauna, fish, fisheries and scent attractions; in or on the land over which the right is sought, and the Minister may cause such environmental impact studies and other studies to be carried out as the Minister considers necessary to enable such a decision to be made.

3.3 WASTE MANAGEMENT REGULATIONS

The Waste Management Regulations Statutory Instrument No. 71 of 1993 provides for the control of transportation of waste and management of waste disposal sites. All persons transporting waste or operating waste disposal sites, including Local Authorities, are required to obtain licenses and have to adhere to conditions and standards set by the Environmental council of Zambia.

3.4 HARZADOUS WASTE MANAGEMENT REGULATIONS

The Hazardous Waste Management Regulations Statutory Instrument No. 125 of 2001 provides for the control of hazardous waste so that the waste is managed in an environmentally sound manner through waste prevention, reduction, recycling, incineration and land filling. The Regulations further provide for the control of generation, collection, storage, transportation, treatment, import, export and final disposal

of hazardous waste. The management of hazardous waste must be done in accordance with the provisions of the Basel and Bamako Conventions.

3.5 INTERNATIONAL CONVENTIONS RELATED TO WASTE MANAGEMENT

Zambia is party to many Conventions and Charters that have been ratified to address emerging environmental issues. The Basel Convention was originally established to address the global problem of uncontrolled movement and dumping of hazardous wastes, including incidences of illegal dumping in developing countries by companies from developed countries. This was of great concern as indiscriminately disposed accidental spillage or improper management of hazardous waste can pose severe health problems, even death and can poison water and land for decades. The Basel Convention is therefore a global Agreement, ratified by many countries including Zambia, for addressing the problems and challenges posed by hazardous waste.[75]

On the other hand, the Bamako Convention was adopted by the members of the African Union in 1991 and came into force in 1998. It is a Convention on the ban of the import into Africa and control of Transboundary Movement and Management of hazardous wastes within Africa.[76]

[75] Environmental Council of Zambia: National Solid Waste Management Strategy for Zambia
[76] Ibid, pg. 8

3.6 THE MUNG'OMBA CONSTITUTION REVIEW COMMISSION ON ENVIRONMENT

The Mung'omba Constitution Review Commission as regards the environment observes that a clean and healthy environment is the responsibility of both the State and its citizens and that both should work towards its protection. Sustainable management and utilisation of the environment and natural resources is necessary for both present and future generations. The Commission also notes that under International Conventions to which Zambia is a State Party, the country has an obligation to protect the environment. It is therefore, regrettable that unsustainable use of the environment has been going on relatively unabated in the country.[77]

Furthermore, it is worth to note the fact that the current Constitution addresses the subject of environmental management in the form of non-justiciable Directive Principles of State Policy.[78] As a result, those provisions are not enforceable. However, the Mungo'mba Commission recommends that the provisions on environmental management be guaranteed in the Bill of Rights so that the citizens' right to a clean environment can be an enforceable right in Zambia.

3.7 AN ASSESSMENT OF THE LEGAL FRAMEWORK

From the foregoing, it is evident that there is need to harmonise and rationalise environmental legislation in Zambia to make it effective and enforceable and therefore achieve the desired results, that is, an environmentally safe environment and sustainable

[77] Interim report of the Mung'omba Constitution Review Commission pg 789
[78] Article 112 of CAP 1

exploitation of natural resources. To this end, there must be legislative action to be undertaken on our legislation. For example, there is need to amend the Environmental Protection and Pollution Control Act. The Act should be able to cater for the waste aspect fully and have stringent (or rather strict) provisions so as to punish any careless disposal of waste such as not only punishing large scale garbage dealers without licenses but also punish or fine garbage disposers on the ground, like marketers piling garbage near the market places or the roadside. This is because these are the main contributors to epidemic outbreaks like cholera, dysentery and anthrax.

3.7 CONCLUSION

It is submitted that firstly, the making of explicit and enforceable regulations under the 1990 Act on pollution control measures is an important step in the implementation of environmental legislation in Zambia.

Secondly, an assessment of all environmentally related Treaties and Conventions to which Zambia is a party is needed. This is to see how far Zambia has implemented these international obligations through its environmental legislation and to also ascertain which ones have not yet been ratified and thus determine the future course of action in relation to international treaties on the environment with special emphasis on policy of negotiations. It is suggested, therefore, that the assessment of all environmentally related Treaties and Conventions to which Zambia is a party, be a major exercise in relation to environmental law in Zambia. Besides, it is the one for which assistance could be

obtained from government and the Environmental Council of Zambia Legal Service divisions.

CHAPTER 4

COMPARATIVE STUDY

4.0 INTRODUCTION

All over the world, people and governments are becoming worried about what is happening to the planet earth. They are beginning to see that what affects one region is not isolated but affects other regions as well. The air we breathe is not confined to political boundaries.[79] The water too is not confined to boundaries meaning that if a river is contaminated by one country, the neighbouring countries through which the same river passes may get affected by that pollution too. Besides that the heating of the atmosphere is no respecter of national frontiers and the resources we have cannot go on forever.

Consequently a concerted effort by all is needed to counteract the depletion of natural resources and the threat posed to our health by the unsanitary heaps of garbage. There are countries that really have environmentally sound practices and ensure the environment is clean and thus upholding the peoples' social right to a clean environment.[80] It is from such countries that other countries like Zambia should get a good example from.

The Government of the Republic of Zambia has over the years tried to embark on policies that could eradicate the waste situation. Therefore, Zambia though not bad compared to other countries as regards undisposed waste it should get some certain good examples from other countries so as to take our present situation and condition to another

[79] 1.McGivern ,T. (1992) Who cares Pg (111)

[80] 2. Art 112(d) of the constitution of Zambia

level, and thus ensuring our aspiration of a clean Zambia These best practice examples from other jurisdictions responses to waste management problems should be considered with a view to identifying the best practice. Consequently, when some certain traits and best practices are extracted from other jurisdictions, Zambia could come up with best practice for its waste management as it improves where there is room to.

4.1.0 BEST PRACTICE EXAMPLES FROM OTHER JURISDICTIONS' RESPONSES TO WASTE MANAGEMENT PROBLEMS

4.1 A CRITIQUE ON THE ZAMBIAN LEGISLATION

4.1.1 The Constitution of Zambia

The constitution of Zambia addresses the subject of environmental management under part IX of the constitution. However the scope is narrow. Besides that, the subject is addressed in the form of non- Justiciable Directive Principles of State Policy.[81]Consequently the provisions are not enforceable. Article 112 of the constitution states in part that:

> "(d) The state shall endeavour to provide clean and safe water…;
>
> (h) The state shall strive to provide a clean and healthy environment for all; and
>
> (1) The state shall promote sustenance, development and public awareness of the need to manage the land, air and water resources in a balanced manner for the present and future generation".

[81] 3. Art 112 of CAP 1

However, it must be stated that the government has the duty to fund the aspect and also give to the people of Zambia a constitution that would enable them to bring actions when they have grievances.

On the other hand, some countries have really taken a greater step as regards environmental management and have chosen to effectively care for their environments. Their efforts can be seen in the fact that they have put articles providing for a clean environment in the Bill of Rights in the constitution which is the supreme law. For instance, in comparison to the constitution of Zambia, the constitution of Uganda provides in the Bill of Rights that every Ugandan has a right to a clean and healthy environment.[82] In addition, under chapter 15, which deals with land and the environment, Article 245 provides in part, that:

"245. Parliament shall by law, provide for measures intended-

(a) To protect and preserve the environment from abuse, pollution and degradation.

(b) To manage the environment for sustainable development and

(c) To promote environmental awareness".

Similarly, the constitution of South Africa provides in the Bill of Rights[83] that:

"Everyone has a right-

(a) To an environment that is not harmful to their health or well-being; and

[82] Art 39 of the Ugandan Constitution
[83] Sec 24 of the South African Constitution

(b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-

(i) Prevent pollution and ecological degradation;

(ii) Promote conservation; and

(iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development".

Therefore, unlike in some countries, a clean environment is not an enforceable right in Zambia. It is important that the provision in the constitution that 'the state shall endevour to provide a clean and healthy environment for all and promote sustenance, development and public awareness on the need to manage the land, air and water resources in a balanced and suitable manner for present and future generations' be included in the bill of rights. Additionally, there should be a corresponding duty on every citizen to protect the environment.

It is imperative to also note that the Mung'omba Constitution Review Commission observes that the majority of petitioners who made submissions on the subject of natural resources conservation and utilization wanted the constitution to make provision for protection of the environment and sustainable utilization of natural resources.[84] Therefore, it is a challenge on our constitution that it guarantees the right of citizens to a clean and healthy environment in the Bill of Rights. In fact the Mung'omba Commission also recommends that the Zambian constitution should provide in its Bill of Rights that

[84] The Mung'omba Constitution Review Commission Interim Report pg 790

'everyone has a right to an environment that is not harmful to their health or well being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures'.[85] In essence, the Mung'omba Commission recommends that the constitution of Zambia provides for the right of every citizen to a clean and healthy environment in the same way the South African constitution has enshrined in its Bill of Rights.

In addition, the constitution shall impose a civic duty on citizens to protect the environment from harmful use and ensure the well-being of the people, and that this duty be weighed against the right of the citizen in determining the justifiability of the same.

4.1.2 A Critique on the Waste Management Legal Framework

The Environmental Protection and Pollution Control Act is the principal law on the environment in Zambia. The Act can be criticized to be less comprehensive as regards Waste Management because it only has few provisions on the same[86] and mainly focuses on the issue of licenses.

Moreover, in Zambia, the aspect of Waste Management is scattered in different legislation. It is in part VI of the Environmental Protection and Pollution Control Act, in section 65 and also in section 78 of the Public Health Act, in sections 50 to 52 and also in section 61 of the Local Government Act. Part IX of the Mines and Minerals Act looks at environmental protection and consequently it has a Waste Management aspect provided

[85] Sec 24 of South African Constitution (in Bill of Rights)
[86] Part vi of the EPPCA

in it and so on. All these have some sections providing for waste management. It is high time Zambia came up with a Waste Management Act that would serve as a one stop shop facility and thus cater for all aspects of waste management in that single legislation. In comparative terms, some countries like Botswana have a waste management Act.[87] This is also a good example to Zambia in that when all Waste Management aspects are embodied in their separate and single legislation, the provisions will be comprehensive and thus cater for all matters and incidences of Waste Management.

The Botswana Waste Management Act of 1998 for instance is an Act to provide for the establishment of the Department of Sanitation and Waste Management; to make provision for the planning, facilitation and implementation of advanced systems for regulating the management of controlled waste in order to prevent harm to human, animal and plant life; to minimize pollution of the environment, to conserve natural resources; to cause the provisions of the Basel Convention to apply in regulating the trans-boundary movement of hazardous wastes and their disposal; and for matters incidental to and connected to the foregoing.[88] Hence, all matters of waste management are embodied in this single Act which directly addresses them.

Furthermore, it is worth noting that other countries have domesticated the provisions of the international conventions signed by them. It is therefore a challenge to Zambia to also domesticate international conventions it has not yet domesticated on environmental

[87] Environmental Council of Zambia Archives
[88] Preamble of the Botswana Waste Management Act

management and in particular on waste management ratified by it. This would facilitate implementation of the laws.

4.1.3 Other Examples (Miscellaneous)

One can be able to ascertain issues through direct observation. In practical terms, a clean country can be identified from the looks of its surroundings. On the other hand, if a country has heaps of garbage lying around in residential areas, near markets, on the streets and so on, this shows that that country is far in attaining high standards of cleanliness which are required in order to prevent disease and other negative effects of waste.

To show how much countries are concerned about litter in the streets, households in West Germany are fined if the front of their houses are littered with garbage. In Australia, anyone who drops litter in the street (even a paper, a cigarette packet) is fined on the spot.[89] The motto "keep your town clean" is not just for beauty's sake but because of the very great danger that accumulated garbage can pose.

4.2 CONCLUSION

There must be strategies and reforms to address the problem of solid waste management, which had over the years far reaching effects on both human health and also the environment. Therefore recommendations are needed to inform possible change with

[89] Mc Givern, S.J (1992) Who Cares? Pg 41

regard to waste management in Zambia. Thus, it is important that other countries' responses to waste management problems are analyzed with a view to identifying the best practice examples that would suit and inform possible reform in Zambia.

Moreover, there must be protection and preservation of human health; and rational utilization of natural resources so as not to disadvantage future generations. The prime question is to ensure that man and his environment are not harmed by waste disposal. Hence it is a challenge to all Zambians to care for the environment for a better Zambia now and in the future.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

And God saw everything that he had made, and, behold, it was very good.[90]

5.0 CONCLUSION

Attitudes concerning the cost of safe and hygienic collection and disposal of household and human wastes and the provision of safe water supplies are not so enlightened. For example, it has taken many years or more for many Governments to accept that illegal settlements and land invasions are not a threat to established institutions but a growing movement that emerges out of people having no other way to secure a house site. Most new urban housing and urban neighborhoods in the third world are developed in this informal way.

Consequently, the Government needs to work with inhabitants of these informal settlements to tackle the environmental health problems caused by solid wastes- and also to understand how much improvement can be made to water, sanitation and drainage and to health in general at relatively low cost.

It can be suggested that one reason for so little government action is that the health impact of the most serious environmental problems are largely confined to poorer groups. It is common for the residential areas of middle-and upper income groups and the main commercial and industrial concerns in the country to receive good quality water supplies,

[90] Genesis 1:31 King James Version

sewers, drains and regular services to remove solid wastes while 30 percent or more of the city population in the poor residential areas receive little or nothing.[91]

In addition, generally, it has been shown that waste problems in the country can lead to health risks. Water contaminated by waste can lead to typhoid, hepatitis, dysentery, diarrhoea, cholera and so on. Besides that inadequate disposal of human wastes can lead to pathogens from excreta contaminating food, water or fingers leading to faecal-oral diseases or intestinal worms, for example, hookworm, roundworm, tapeworm, schistosomiasis. Furthermore, garbage attracts disease vectors.

As a result, there must be concerted efforts by all to counteract the drastic effects that solid waste can cause. There must always be interaction between people and the environment. The riches of the environment are to be used so that people can live well. Natural resources are to be exploited but at the same time conserved for the future generations. The children of today and tomorrow should be able to grow up healthily, enjoy clean air and water, build proper homes, eat good food, be free from preventable diseases and be able to say how wonderful the world is.

Past years experience has shown that polluting emissions can be controlled and solid wastes managed (and reduced), with resources and political will, allied to appropriate legislation and its enforcement. Major improvements in the quality of the country's environment are possible, simply through implementing existing pollution control and

[91] Hardoy, J E etal (1992) Environmental Problems in the Third World Cities pg 129

occupational health legislation,[92] and giving more attention to making better use of existing infrastructure and equipment- for instance giving more attention to repair and maintanance in public service vehicles collecting solid wastes, or trucks which empty latrines and septic tanks.

It is imperative to note that typical European or North American garbage collection and disposal service is relatively expensive and may be beyond the means of most existing urban/municipal government budgets of Third World Countries.[93] It is also wasteful of resources. There are sufficient examples of alternative approaches to suggest that major improvements in service provision can be made (including regular garbage collection from poor peripheral districts) at much lower costs than the Conventional 'Western' approach, with the added advantages of greater support for employment generation and waste reduction. The country needs solid waste management strategies that have such broad goals and which build on existing informal waste recovery and recycling.

In addition professional attitudes are beginning to change in regard to the collection and processing of garbage.[94] There is a greater recognition of the need to develop local solutions, which match local needs and possibilities. One reason for this is that conditions vary so much from city to city in (among other factors): the scale and type of refuse generation; the amount residents can afford and are prepared to pay for this; the type of vehicles needed to get to each building in different settlements; local possibilities for

[92] For example Art 112 of the Constitution on Environmental Management must be enforceable
[93] Hardoy, E, J. (1992) Environmental Problems in Third World Cities. Pg 134
[94] Cointreau, S. (1982) Environmental Management of Urban Solid Waste in Developing Countries, Urban development Technical Paper no. 5, World Bank, Washing DC.

recycling or reclaiming part of the refuse; local possibilities for recycling or reclaiming part of the refuse; local traffic conditions; the availability of landsites for city dumps; and the resources at the disposal of local authorities for the collection and management of garbage disposal.

Approaches based on matching waste management with local needs and resources and on minimising resource recovery imply solutions very different from those taught to engineers whose training is overwhelmingly based on Western models and precedents.[95]

5.1 RECOMMENDATIONS

Zambia's ecosystems are varied and able to support a wide range of livelihoods. However, environmental sustainability is a serious problem in Zambia and urgent measures are required to conserve natural resources for both the present and future generations. Several measures can be implemented which can ultimately improve the waste management situation in Zambia.

5.1.1 A Better Use of Each Town's Natural Resources (Recycling and Re-Use)

One of the most revealing environmental audits of any town is how efficiently its inhabitants and businesses make use of the City's Natural Resources and how in what form and scale the wastes are generated, recycled, re-used or treated (if at all) and disposed off. Recycling and re-use is one way of disposal. The management options proposed by the Zambia National Environmental Action Plan (NEAP) OF 1994 have left

[95] Furedy, C. (1992) 'Garbage: exploring non-Conventional Options in Asian Cities' Environmental and Urbanization Vol. 4, no. 2

out the community based initiatives to waste management that involve recycling and re-use. Japan for example recycles 75 percent of its wrecked cars. Paper, bottles and tin cans can all be re-used when recycled. Therefore, reducing waste and maximising environmentally sound waste re-use as well as recycling should be the first steps in waste management.

Moreover, reclamation and recycling of wastes can create employment for Zambians. It can bring substantial economic benefits. For instance, in Calcutta, an estimated 40,000 people make a living from recovering and using (or selling) resources picked from wastes- and many thousands more make a living from intensive farming using composted household wastes, and fish rearing in ponds fertilized by city sewage.[96] But it is not only in the poorer Asian cities where the reclamation and recycling of wastes are important sources of employment; in Bogota, the capital of Columbia, this is how an estimated 30,000- 50,000 people earn a living including cart drivers, small scale waste dealers, people reclaiming materials from street waste and the employees of the Municipal waste disposal and street cleaning department.[97] Consequently, the intensive use of city resources and wastes can bring major environmental benefits and cost savings. Above all, all this activity keeps down waste levels and reduces consumption levels for non-renewable Natural Resources.

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[96] Furedy, C. (1990) ''Urban Wastes and Sustainable Development; a Comment on the Brundtland Report' in Polunin, N and Burnet, J, Maintanance of the Biosphere, proceedins of the Third World International Conference on Environmental Future, Edingburgh University Oress pp 213-218

[97] Margarita, P. (1992) Recycling in Bogota; develpoing a culture for urban sustainably Environment and urbanization Vol. 4. No. 2

5.1.2 Industrial Wastes

Organic residues from industries are usually among the most bulky of solid wastes and the most serious sources of water pollution (largely through their depletion of water's dissolved oxygen). However, they can be used as feed stock for the manufacture of animal feed, packaging material, chemicals and pharmaceuticals, fertilizers, fuel, food and construction materials. Wastes from many agro-processing industries can be valuable feedstock for other industrial operations. For instance, '*bagase*' (sugar cane waste) is commonly used as fuel for the sugar cane mill or an ingredient in animal feed or building materials. It can also be used as a feedstock in paper production.

5.1.3 Status and Trends

Improving environmental health conditions in low-income settlements can help reduce the amount of waste in Zambia. There is a critical need to improve access to proper sanitary facilities in order to improve the living standards of both urban and rural communities. In 1990, only 17 percent of the households had access to improved sanitation, which declined to 15 percent in 2000. Again the situation is worse in rural areas where only 2 percent had access to proper toilet facilities in 2002 compared to 39 percent of urban households.[98] This limited access to proper toilet facilities exposes communities to water contamination and to diseases like diarrhoea, dysentery and cholera.

Besides that, where different waste collection systems are applied within the peri-urban areas, it is important that households, business entities and institutions take their waste to

[98] Zambia Millennium Development Goals Report 2003

the containers or primary waste collection systems provided by the council. Therefore, there must be an increase in the number of households served with solid waste collection within the boundaries of the municipality. Moreover, must provide safe dumpsites and rehabilitate the existing ones.

5.1.4 Encouraging Participation of Communities and the Private Sector

One of the challenges to sustainable environmental protection and utilization is having weak mechanisms for encouraging genuine participation of communities and also the private sector in Environmental natural resource management. The fact that a clean environment requires concerted efforts from the Government, the private sector and the general public in order to achieve a clean and quality environment that would promote economic, social and cultural development cannot be overemphasized. Traditional solid waste management concentrates on waste collection, transportation and disposal. This will enable everyone including the people on the ground to participate in waste minimization using traditional means.

Attainment of a quality environment requires mobilizing public support and creation of a positive attitude of mind towards current environmental problems and their solution. This can be done by provision of adequate funding and dedicated human rights to carry environmental policies through both at the central and local levels. Full use should be made of a holistic approach that will rationalize sector policies and decentralisation. The greatest challenge will be for all citizens to willingly embrace national policies on environment and work together to their successful implementation, for the benefit of

present and future generations. There must also be stakeholder participation. Furthermore, the waste generated per capita can be decreased by reducing packaging material, and the toxicity of waste produced for instance governmental pressure on producers.

5.1.5 Providing Adequate Data and Information on Waste Management

Knowledge is power. It is therefore important that people are educated on the importance of taking care of the environment. Adequate data must also be provided to raise environmental awareness and also that people see how much they still need to improve.

5.1.6 Controlling Rapid Urbanization and Over Population

Population needs to be controlled in order to match it with available resources. Over population results in land degradation and accumulated waste production. On the other hand pollution is always the unintended side effects of social and economic activities. The ever increasing industrial activities and spreading urbanization generate both air, and water pollution and increasing quantities of solid hazardous waste, all of which have negative impacts on the environment and on populations.

Rapid urban expansion without effective urban governance means that in virtually every urban centre-a substantial proportion of the population is at risk of natural and human-induced environmental hazards. For instance, in the city a high proportion of the population lives in shelters and neighbourhoods with little or no provision for safe disposal of their solid wastes. Therefore, development must be taken to rural areas for example so that people do not migrate to the cities. This will also help reduce the mushrooming of unplanned and illegal urban settlements.

5.1.7 Employing Integrated Solid Waste Management

Integrated solid waste management is a practice of using several alternative waste management techniques to manage and dispose of specific components of the municipal solid waste stream. One of the fundamental approaches to integrated solid waste management is the minimization of waste, prevention of pollution through waste control of impacts and remediation.

Waste management alternatives include source reduction, re-use, recycling, composting, energy recovery and environmentally friendly disposal. Traditional solid waste management concentrates on waste-collection, transportation, and disposal in most cases on open dumpsites. Integrated solid waste management however broadens the issue and includes waste stream assessment, waste reduction (minimization, including composting), resource recovery (re-use and recycling), special treatment (for example for medical waste) and environmentally friendly disposal on sanitary landfills.

Furthermore, integrated solid waste management includes public participation, environmental impact assessment, especially for planning disposal sites, and human resource development.

5.1.8 Finances

Sustainability of the solid waste management system depends on two cornerstones: (1) good management and (2) financial viability. Therefore there must be a challenge on the

government to be able to fund the waste management aspects in order to obtain good results. Besides, people must pay a fee where their council requires them to, for waste collection. This is because solid waste systems are introduced by councils for residents' benefit.

5.1.9 Strengthening of the Legal and Institutional Framework and Implementation of National Policies on Environment

In order that the waste situation is dealt with effectively, there must be established a strong legal framework. Laws and regulations must be put in place so that environmental degradation is monitored. Besides that there must be an enforcement mechanism. It is important therefore that provisions in the constitution on environmental management be enforceable. Moreover, it can also be recommended that the different existing legislation on waste management be put in one umbrella legislation that would act as a one stop shop facility and thus cater for all matters of waste management. Adjacent to that, the legal framework must be comprehensive and thus cater for all incidences of waste management.

In addition, in some countries, however, pollution is the result of activities at the global level and nations may be required to implement international agreements that address current pollution practices. As environmental problems become global in scope, international cooperation is needed to solve them. International and regional organisations may play a key role in developing a consensus on what types of collective action should be pursued. Therefore it is recommended that Zambia should ratify

international conventions on environment. It should not only ratify the conventions but also domesticate them.

Although the role of international conventions and international organizations is extremely important, one should not forget that environmental problems require action at the national and local levels. Thus the government must make effective policies on waste management and also be able to implement them. In fact the policies and attitude of government can greatly enhance the effectiveness of solid waste management strategies in the country. Policies must be created that will facilitate development whilst at the same time conserving Natural Resources and without hindering social and economic objectives as defined in the national sectoral policies and the Millenium Development Goals. To attain this target it is necessary to harmonise disparate sector policies and to introduce suitable institutional, legal and funding measures required for implementation, building wherever possible on the existing legislation.

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