

**STATUS OF ENVIRONMENTAL EDUCATION IN WASTE MANAGEMENT
FOR THE ZAMBIAN HOSPITALITY INDUSTRY: THE CASE OF LUSAKA
URBAN.**

By
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DECLARATION

I, **Mirriam Sampa Moonga** do hereby solemnly declare that this dissertation represents my own work and that it has not been previously submitted for a degree at this or any other University.

Signed: 

Date: 27th June, 2007

CERTIFICATE OF APPROVAL

This dissertation for Mirriam Sampa Moonga is approved as fulfilling part of the requirements for the award of the degree of Master of Education Environmental Education (M Ed. (EE)) by the University of Zambia.

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DEDICATION

To my late Uncle Boniface Bwalya Sampa and Sister Anastasia Mwila Bwalya, and my parents Lazarus and Lwisa Bwalya whose support and love in my education and work will forever inspire me.

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LIST OF ABBREVIATIONS

CDC	Curriculum Development Centre
EE	Environmental Education
ECZ	Environmental Council of Zambia
EEASA	Environmental Education Association of Southern Africa
HI	Hospitality Industry
IAIA	International Association for Impact Assessment
IUCN	International Union for the Conservation of Nature
LCC	Lusaka City Council
NGO	Non Governmental Organization
UNCED	United Nations Conference on Environment and Development
MOE	Ministry of Education
NSWMS	National Solid Waste Management Strategy
NISTCOL	National In-Service Teachers College
NEAP	National Environmental Action Plan
SADC	Southern Africa Development Community
SMSWMP	Strategic Municipal Solid Waste Master Plan
UNZA	University of Zambia
UNESCO	United Nations Educational Scientific and Cultural Organization
WM	Waste Management
WMD	Waste Management Districts
WMAC	Waste Management Advisory Centre

WMU	Waste Management Unit
WWF	World Wide Fund for Nature
ZANEPP	Zambia Network for Environmental Educators and Practitioners
ZNTB	Zambia National Tourist Board

ABSTRACT

In a country with a rapid population growth rate and huge inflow of tourists such as was the case with Zambia, in the year 2007 environmental issues needed to be checked and monitored closely. One such environmental issue needing attention at the time of writing in 2007 was Waste Management. The purpose of this study, therefore, was to explore the role of Environmental Education in Waste Management for the Zambian Hospitality Industry of Lusaka urban.

The main research question investigated by the study was whether there was EE provided in waste management for the Zambian hospitality industry of Lusaka urban.

Specific research questions included the following:

- What kind of EE on waste management was provided to the hospitality industry?
- Who provided EE on waste management to the hospitality industry?
- What were the views of the hospitality industry regarding the type of EE on waste management?

The study used a survey design, supported by quantitative and qualitative data. A sample total of 25 respondents were randomly selected and this included 10 hotels, 10 lodges and 5 officers. The five officers involved two from Lusaka City Council and three from the Environmental Council of Zambia Waste Management Units. Data was collected using questionnaires, semi structured interviews and physical observations. Quantitative data collected was analysed using simple frequency distribution tables and percentages, while

qualitative data from interviews and observations were analyzed qualitatively by coding and grouping similar themes using constant comparative techniques. Tables and charts were used in the presentation of data after analysis.

The main finding of the study was that there was no Environmental Education (EE) in waste management as such provided to the hospitality industry in Zambia but that there were institutions in Zambia which claimed to offer Environmental Education programmes on waste management to the hospitality industry. These included Local Authorities like the Lusaka City Council (LCC) and the Environmental Council of Zambia (ECZ). The Lusaka City Council managed waste through its Franchise Companies contracted to help it in the management of waste in Lusaka urban. Each Franchise company had been allocated an operational district while LCC itself had remained with the Centre of the city. The study further discovered that there was a small amount of waste management which was being done at in-house level in very few institutions. The study revealed that institutions responsible for the provision of EE to the hospitality industry had no specific or designed waste management EE curriculum for the hospitality industry. Instead, they offered a general sensitization program to the entire community, which did not meet the EE requirements of the hospitality industry. As a result of such generality, most of the hotel/lodge staff knew very little or nothing at all about professional issues of waste management. Hence, the poor waste management practices being practiced by the hospitality industry could be attributed partly to the lack of an EE policy in the industry.

The main conclusion of the study was that there was EE provided to the hospitality industry in Zambia. However, the EE which was provided was general in nature and was not specifically directed to the needs of the hospitality industry.

The study, therefore, recommends that institutions responsible for the provision of EE to the hospitality industry should design EE programmes tailored specifically to meet the needs of the hospitality industry, establish more institutions which are specialized in waste management as well as increase the number of EE providers in order to ensure effective communication, networking and monitoring within the hospitality industry. Other recommendations are that EE providers should come from within the hospitality industry in order to effectively provide EE to the hospitality industry.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

In Zambia, the management of municipal solid waste has emerged as one of the major environmental concerns in urban areas, particularly in Lusaka, the capital city. Zambia's National Environmental Action Plan (NEAP, 1994) cites issues around waste as 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. In a related manner solid waste pollution has emerged as one of the major environmental issues in Zambia. According to Sherman (1996) large volumes of waste are produced in the diverse facilities that the hotels and lodges encompass. These include areas like guest rooms, kitchens, lounges, restaurants, laundries, offices, and conference rooms. Guest rooms can produce surprisingly large amounts of waste depending on the number of occupants and the type of property. The forms of waste from guest rooms include things like cans, bottles, newspapers, magazines and office paper. Others include left over foods, vegetable peels and cardboard boxes. What makes waste management to be an issue in the hospitality industry of Zambia is the point that the industry itself is not involved in any form of waste processing such as recycling, re-use or reduction measures. All waste that accumulates in these lodging facilities finds its way in the waste bin, where it becomes the responsibility of waste managers.

Studies by the ECZ (2001, 2004) have revealed that the Lusaka City Council and other waste management stakeholders had failed to deal with the challenging problem described above. These studies have cited lack of funding and inadequate methods of waste management that do not involve reduction, re-use and recycling as some of the factors explaining failure to deal with this problem ECZ (2001). According to the Zambia National Tourist Board (ZNTB) (2007) the average rate of increase of hospitality industry outlets generating waste in Lusaka urban was about 4 to 5% from 2004 to 2006.

ECZ (2001) further contended that the rapidly increasing quantities of waste generated due to industrialization and population growth during the last few decades has become a major concern to Zambia's environment. According to the same source, the annual average rate of increase of waste in Lusaka alone was expected to grow from 220 000 tons to 530 000 tons by 2011, an increase of 141%.

. The volume of waste had almost made it impossible for the municipal authorities to fulfill their obligations concerning solid waste management due to limited financial capacity and lack of trained manpower. However, the studies cited above tended to give a general picture of the situation on solid waste management in Lusaka. This situation left a void as it did not specify the hospitality industry as a significant source of solid waste. The emphasis of the present study was on environmental education in waste management in the Zambian hospitality industry.

In the year 2000 it was estimated that the hospitality industry was contributing 0.60% of waste in the city of Lusaka per year ECZ (2001) .To mitigate this situation, this researcher argues that the residents of Lusaka and the public in general need

environmental education which can make them major players in tackling waste from the source.

The local authority, LCC, continues to argue that only a fraction of this solid waste is collected and disposed of at designated sanitary landfill sites. The remaining uncollected waste has become a major concern for the responsible authorities as this has caused several outbreaks of Cholera and other diseases and a general deterioration of the environment especially in the peri-urban areas and the adjoining high-density compounds ECZ (2001).

It is the view of this research that environmental education should be understood holistically to include all aspects like the hospitality industry.

1.2 STATEMENT OF THE PROBLEM

Although there is an increase in the provision of Environmental Education (EE) in Zambia, (CDC 2005, WWF 2006, MOE 2006), the nature of EE in waste management and providers of EE to the hospitality industry in the country are not known. There is no known study in EE about waste management in the hospitality industry apart from studies conducted in North America and Canada (www.morarkango.com, www.ncsu-eduprogms, www.ens-newswire.com).

1.3 PURPOSE OF THE STUDY

In view of the above, this study sought to explore the existence and type of EE in waste management being provided to the hospitality industry in Zambia. The study also sought to identify the providers of EE and assess the hospitality industry's view on the type of EE provided in waste management in 20 hospitality industry institutions of Lusaka urban.

1.4 OBJECTIVES OF THE STUDY

The study sought to:

- find out whether or not there was EE provided to the hospitality industry;
- determine the kind of EE provided to the hospitality industry on waste management;
- establish the providers of EE on waste management to the hospitality industry; and
- assess the views of hospitality industry regarding the type of EE provided to it.

1.5 RESEARCH QUESTIONS

Arising from the research problem stated above, this study tackled the following specific research questions:-

- Is there EE provided to the hospitality industry on waste management in Lusaka urban?
- What kind of EE on waste management is provided to the hospitality industry?
- Who provides EE on waste management to the hospitality industry?

- What are the views of the hospitality industry regarding the type of EE on waste management?

1.6 SIGNIFICANCE OF THE STUDY

It was important to undertake this study since, to the best knowledge of the researcher, no relevant study of this nature had been conducted in Zambia before. At the time of writing in 2007 the general situation of waste accumulation around the increasing number of lodges and guest houses in Lusaka still remained a big problem. This situation necessitated the present research, NEAP (1994).

Through the findings of this study, management in hotels and lodges might see the need for environmental and educational policies concerned with the management of waste in the hospitality industry in Zambia and look for ways of meeting any such need. Furthermore the outcomes of the study might help to fill in the gap regarding the provision of effective and suitable EE to the hospitality industry by relevant organizations such as the ECZ, LCC, Franchise Companies and the Ministry of Education through the Curriculum Development Center (CDC).

Findings of this study will help the hospitality industry to demand the appropriate environmental education suitable to it. The hospitality industry will then attract the rightful clients which will bring about genuine development to the country. The study is being conducted when the country is promoting the tourism industry through the “visit Zambia” campaign when hotels and lodges in Lusaka were receiving many local and international visitors. The Zambia National Tourist Board (ZNBT) and the individual

hotels and lodges will benefit from the study findings as environmental education practices lead to good and attractive premises to the customers.

It is hoped that the study will produce observations, conclusions and recommendations which could contribute to the enhancement of waste management in the hospitality industry of Lusaka city, in particular, and of Zambia, as a whole.

1.7 LIMITATIONS OF THE STUDY

Considering that the study on the status of EE in waste management is new to the hospitality industry and Zambia as a whole, it would have been more fruitful if all the institutions of the hospitality industry were included in the investigation. In a situation where this was not possible due to lack of time and money, the study was limited only to ten hotels and ten lodges of Lusaka city.

CHAPTER TWO

RESEARCH METHODOLOGY

2.1 DESIGN OF STUDY

The study was dominantly a survey involving several hospitality industry outlets consisting of 10 hotels and 10 lodges and findings from these institutions were generalized to other hotels and lodges in the city of Lusaka.

2.2 TARGET POPULATION

The target population of this study comprised all hotels and lodges in Lusaka. All the institutions which provide EE in waste management in the city of Lusaka were also part of the study population.

2.3 STUDY SAMPLE

The sample population comprised 10 hotels and 10 lodges in Lusaka urban which were randomly selected. The hotels were; Capital, Chainama, Chrismar, Cresta Golfview and Fair view. Others included, Garden House, Lusaka, Ndeke, Pamodzi and Holiday Inn hotels. Lodges included Chita, Comfort, Cross Roads, Handsens and Kamloops, La Cabbana, Longacres, Mwiza Corporate, Olympia Executive and Vine Yard lodges. At each of these institutions managers or their representatives were targeted to provide the necessary information. In addition, there were five (5) officers from waste management

units of LCC and ECZ. The five (5) members of waste management teams of ECZ and LCC were selected and interviewed.

Other characteristics of the respondents were that some were trained in their fields of specialization while some were not. Some of them had general training not related to EE in waste management. These officers held positions such as senior health inspector, Health and waste management inspectors and senior waste management inspectors. Respondent from the hospitality industry included men and women who included trained and non trained workers.

2.4 SAMPLING PROCEDURE

Simple random sampling procedure was used to select respondents for the study, except in posts where only 1 or 2 officers were found in which case one or both of them were selected. Names of hotels and lodges were written on pieces of paper which were folded and two independent people were asked to pick five pieces from each heap. The hotels and lodges picked became participants in the study while those that were not picked were left out.

2.5 RESEARCH INSTRUMENTS

To obtain the required data, the following instruments were used:

- **Questionnaires:** These were administered to all hotel respondents and selected officers from relevant institutions.

- **Interviews:** Structured interviews were conducted among officers from waste management units for supplementary data which might not have been obtained through questionnaires.
- **Observations:** Physical observations were conducted in the hotels; lodges and Chunga landfill site in order to establish how EE in waste management was conducted in terms of waste generation, collection, treatment, transportation and disposal.

2.6 PILOT STUDY

A pilot study was conducted at two hotels in Mongu. The location of the pilot study was a rural area but it fitted with the overall direction of the study, as the area also had hotels and lodges. The purpose of the study was to test the effectiveness of the instruments in collecting the appropriate data.

Through the findings of the pilot study, the instruments were accordingly adjusted. For example, it became clear through the pilot study that hotel managers were difficult to find and interview. This made the researcher to direct the interview to other critical officers such as supervisors of units. In the pilot study, there was no objective seeking to find out whether EE in waste management existed, but after the pilot study, the objective was included.

2.7 DATA COLLECTION PROCEDURE

In order to establish the environmental education aspect in waste management, three methods were employed. The observation method was used to ascertain the use of environmental education in waste management in hospitality institutions in Zambia.

The second method involved administering questionnaires to hotel management and staff of relevant sections. The third method involved interviews with staff from organizations such as Environmental Council of Zambia (ECZ) and Lusaka City Council which provided environmental education to the hospitality industry

To obtain the needed data from the sampled participants, the researcher got written permission from the university authority. At every hotel/lodge that was visited, the researcher reported to the hotel Human Resource Manager and Lodge Manager. After introductions and briefing on the purpose of the visit, the researcher was given permission to administer the questionnaires, arranged time for collecting completed ones and for interviewing relevant officers.. The data collection exercise took approximately four months, from April to July 2006.

When the researcher met the respondents, they were given the questionnaires and asked to respond at their own time. Each questionnaire had clear instructions on how to complete it (see Appendix II). However, participants were given further clarification by the researcher where necessary. Some questionnaires were completed while the researcher waited and others were collected later at arranged times.

Interviews were done at agreed times with the respondents, and observations were conducted at arranged times with relevant people in charge of places involved with

permission from hotel/lodge authority. Documents from the participating institutions were inspected and analysed.

2.8 DATA ANALYSIS

Quantitative data from questionnaires was analysed manually using simple distribution tables to generate tables of frequencies and percentages. Qualitative data from interviews and physical observations were coded and emerging themes were grouped into categories using constant comparative analysis technique and then interpreted. The responses from the subjects were put in percentage to show the popularity of the idea.

This study made use of the triangulation technique to establish the accuracy of responses. Triangulation is basic to survey. It allows the researcher to test one source of data against another. In this way, it improves the quality of data and accuracy of the findings. In this study, triangulation occurred as the researcher used different sources of data, Borg and Dall (1979). In this regard, data from questionnaires was compared with data from the interviews, physical observations and relevant documents.

CHAPTER THREE

LITERATURE REVIEW

3.1 INTRODUCTION

Waste is often said to consist of material or non material things that are no longer required by the user or producer or, as some people would say, “anything being discarded.” These discarded things may be classified in several ways such as commercial, industrial, household or clinical waste. The “unwanted material” may exhibit characteristics that require correct management. Waste production is often unavoidable. It, therefore, becomes absolutely important to investigate ways of minimizing its continuous generation as well as acquainting oneself with various waste management options. In one understanding, waste management is defined as the collection, transportation, storage as well as the recycling and disposal of waste, including the care of disposal sites, (Mukosa,2001 and ECZ, 2001).

Waste management has now emerged as a dominant urban environmental issue in many countries. Most cities in developing countries are grappling with the problem of the collection and safe disposal of various types of waste. Although still a relatively new phenomenon in environmental protection, waste management has come to occupy the forefront of political agendas in a number of countries such as Zambia. This study focused on solid waste management in the hospitality industry because it is the most dominant type of waste found in that industry.

3.2 ENVIRONMENTAL EDUCATION IN WASTE MANAGEMENT

Environmental Education (EE) came about as a result of the conference of 1977 in Tbilisi, USSR. Since EE became vital, international organizations became concerned and started promoting it through world conferences. The Tbilisi conference and Belgrade chapter (1975) highlighted a number of things about EE one of which is that it is holistic in nature, which means that it is relevant to all subjects and all subjects are relevant to EE. It is embracing because it covers all academic areas.

According to Musonda (1989) EE is identified as an area of concern that cuts across disciplines and, therefore, tries to synthesize knowledge pooled from several disciplines. It is argued that this kind of approach is important given the point that an average adult in African societies has problems in accepting the concept of balanced exploitation of her/his environment. According to many African adults, God made plants and animals so that human beings could feed on them without any reservations. EE in waste management is relevant to the points above in the sense that human interactions and actions on the environment produce waste in all its forms which must be managed.

3.2.1 DEFINITION OF ENVIRONMENTAL EDUCATION AS APPLIED TO WASTE MANAGEMENT

There are different definitions of EE which reflect different orientations to EE. World Wide Fund for Nature (WWF) (2005) reflects its own institutional perspectives on EE. Secondly, a once-and-for-all definition to EE is difficult to find and may not be that

useful at all. Looking back today, we can see how many authors and organizations have struggled to define EE.

As the environmental crisis became more widely noticed, international organizations tried to take the lead in defining EE. Their aim was to develop international frameworks to guide people's practices in EE. Possibly, the most well known of the attempts to define EE internationally is the International Union for the Conservation of Nature (IUCN) definition which was developed in 1971.

Since EE is constantly evolving and changing, definitions have to be broad, and the process of arriving at these definitions should be informed by existing definitions which means therefore, that any definition of EE should encompass all of the essential elements of the environment and the broad definitions of education, by suiting the learning audiences and the context in which they live.

The following, therefore are some of the EE definitions.

Palmer (1998) defines EE as, *the relationship between children and their environments and the influence they are able to bring to bear upon it.*

According to UNESCO, EE is defined as:

A permanent process in which individuals gain awareness of their environment and acquire the knowledge, values, skills, experiences and also the determination which will enable them to act individually and collectively to solve present and future problems as well as to meet their needs without compromising those of the future generations.

UNESCO (2005:5)

IUCN also defined EE as:

The process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. EE also entails practices in decision making and self-formulation of a code of behavior about issues concerning environmental quality IUCN (1971:3).

From the definitions cited above it is clear that environmental education is a very broad field which can be understood from several perspectives. The present study aimed at understanding the role of EE in waste management in the hospitality industry in the city of Lusaka in particular and Zambia as a whole. As applied to EE in waste management, the definitions of EE should emphasize on clarifying concepts that entails practices in decision making and self-formulation of a code of behavior about issues concerning environmental quality. Staff of the hospitality industry should solve present and future waste problems without compromising those of the future generations.

3.2.2 THE GOAL OF ENVIRONMENTAL EDUCATION

As the case is with the definition of Environmental Education, a number of international organizations have also tried to define a set of goals for EE. A base for understanding EE is noted in the framework of goals and objectives produced by international and national conferences during the late 1970s and early 1980s. The Belgrade charter (1975) was adopted by a United Nations conference and provides a widely accepted goal statement for EE which States that:

The goal of EE is to develop a world population that is aware of, and concerned about the environment and its associated problems and which has the knowledge, skills, attitudes, motivations and commitment toward individually and collectively solutions of current problems and the prevention of new ones, (p3).

Applied to EE in waste management, the goal of such education would be to empower operators of the hospitality industry with relevant knowledge, skills, attitudes as well as motivation and commitment towards waste management. Individually and collectively staff of the hospitality industry should find solutions to the current waste problems and prevent new ones from taking place.

3.2.3 OBJECTIVES OF ENVIRONMENTAL EDUCATION

A few years after the Belgrade Charter, at the world's first inter-governmental conference on EE, the Tbilisi Declaration (1978) was adopted. This declaration built upon the Belgrade charter and outlined the following five categories of objectives for EE.

- awareness and sensitivity to the environment and environmental challenges;
- knowledge and understanding of the environment and environmental challenges;
- attitudes of concern for the environment and a motivation to improve or maintain environmental quality;
- skills to identify and help resolve environmental challenges and ;
- Participation in activities that lead to the resolution of environmental challenges.

As applied to EE in waste management, the objectives of such education would be to impart knowledge and understanding of waste management issues by staff of the

hospitality industry as well as skills to identify and help resolve environmental challenges.

3.2.4 PRINCIPLES OF EE

There are two sets of internationally produced principles in EE and what they mean. They are quite similar, but also different in some ways, because they originated in different institutional settings at different times. The first sets of 12 principles which the study is going to highlight are the Tbilisi principles. They were adopted at the Tbilisi Inter-Governmental Conference held in Tbilisi, Russia in 1977. The following are the principles.

Environmental Education should:

1. consider the environment in its totality – natural and built, technological and social (economic, political, cultural – historical, moral, aesthetic);
2. be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;
3. be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
4. examine major environmental issues from local, national, regional, and international points of view so that students receive insights into environmental conditions in other geographical areas;
5. focus on current and potential environmental situations while taking into account the historical perspective;

6. promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems;
7. enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
8. explicitly consider environmental aspects in plans for development and growth;
9. relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
10. help learners discover the symptoms and real causes of environmental problems;
11. emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills and ;
12. utilize diverse learning environments and a broad array of educational approaches to teaching\learning about and from the environment with due stress on practical activities and first-hand experience. Source: UNESCO-UNEP (1978).

As applied to EE in waste management, the provision of EE should be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages. Educating all about issues of waste management, promoting national and international cooperation in preventing and finding solution as well as help staff of the hospitality industry discover the symptoms and real causes of waste management

3.3 FOCUS OF ENVIRONMENTAL EDUCATION

Environmental Education is concerned with increasing people's knowledge, awareness and understanding of environmental issues leading to responsible individual and group actions. Another focus of Environmental Education is to integrate understandings of scientific knowledge and society's needs through enhanced critical thinking, problem solving and effective decision making UNESCO (1992).

Environmental Education (EE) comprises two different words, environment and education. The two words are broad in nature. Environment is a very broad term that challenges modern knowledge and all its institutions of knowledge. It is almost impossible to draw a line and say this is an environmental issue and that is not an environmental issue because the environment has its presence in almost all the disciplines. Namafe (2006) agrees with this notion and argues that EE includes all ordinary, mundane and experienced issues or events which take place in the natural (biophysical), economic as well as social and political dimensions, including their interrelationships. EE, however, he further argues, needs to respond to each and every aspect of this complexity. He emphasizes that no issue would be excluded from EE. For instance, matters to do with beer drinking, conservation, declaring Zambia as a Christian nation or water, all warrant some education and attention since they constitute our 'environment' as we experience it.

In agreement with Namafe (2006) this study tried to look at waste management in the hospitality industry as it is part of our environment. The hospitality industry is part of the economic environment, the state of the industry and waste management issues in the

industry are all subjects of EE. Environmental issues have become global issues. One good example is Agenda 21 which is the main document about the intentions of the United Nations Conference on Environment and Development (UNCED). There is increasing global concern about the numerous environmental problems. The whole environment is in danger of degradation by human activity. One of the answers to this crucial problem is Environmental Education. To support this thinking, Faure et al (1972) explained that education is a living thing, a social undertaking and a building inhabited by men of good will. Environmental education is wide open to new ideas. It is sometimes driven by the desire for self improvement. Through this associations and conferences issues of environmental education in waste management are tackled which becomes an impetus for each country to practice EE in selected areas of need.

Chipili (2006) quoting Jan van Rensburg (2005) gives an example of South Africa where those who were involved in Environmental Education in the conservation agencies, organizations and schools, came together to form the Environmental Education Association of Southern Africa (EEASA). According to Environmental Council of Zambia ECZ (2005), EEASA was established at Treverton, South Africa in 1982 at the first International Education Conference. It further explains that, it is an annual conference which allows environmentalists from different countries in Southern Africa to show case their work, network and share experiences with colleagues from the region and beyond. As alluded to in the previous chapter, waste management has come to the forefront of many international conference agendas. This information is very relevant to the study because issues like waste management should be included in their EE operations. Such actions will provide

opportunities for EE practitioners to participate in waste management in their individual countries. ECZ (2005) contends that EEASA conference is an attempt to provide an opportunity for interactive communication and constructive co-operation between the corporate world, environmentally sensitive organizations and individuals. Further more, the conference aims to share, critically reflect and build upon combined environmental education experiences. In addition, the conference provides an opportunity for EE practitioners, interested parties and potential stakeholders for exposure to a wide range of operators and operations in the field of EE and environmental work throughout the SADC region and beyond. In Zambia, there is a similar association called Zambia Network for Environmental Educators and Practitioners (ZANEEP). ECZ (2005) reports that ZANEEP, whose overall principle is to promote, create and contribute to quality environmental education practices and awareness to enhance protection, conservation and sustainable use of the environment, was prevailed to organize the 2005 EEASA conference, whose theme was, “*New perspectives in Environmental Education at the dawn of the UN Decade of Education for sustainable Development.*” It further stated that the conference was held from 16th to 20th May 2005 at Andrews Motel in Lusaka. In trying to prove the assertion of ECZ, this study tried to find out what organizations offer EE to hospitality industry in waste management.

The International Association for Impact Assessment (IAIA) is another international association for people involved in impact assessment. According to IAIA (2006), the association, has over 2,500 members from over 100 countries that are involved in social, environmental, economical, health, and other types of impact assessment.

Another world forum, interested in the state of the environment, is the recent G8 summit (2005), held in Scotland where environmental issues, particularly the issue of global warming featured prominently. Such international organizations are very important in the field of impact assessment which includes waste management issues, especially in developing countries like Zambia.

Chipili (2006) quoting Likando (2005) noted that, in Zambia, one good example of awareness rallying in favour of the environment , was noticed among the judiciary and captured and reported in the newspaper during the official opening of a two-day environmental law workshop for judges by the chief justice . He was quoted saying that issues of safeguarding the environment had become not only of national but also of international importance and that this called for the need to enlighten people on the dangers of activities that tend to degrade the environment. In support of this notion , Kelly (2001) alluded to the fact that education has a vital role to play in helping human beings to improve their relationship with the environment and indeed , in contributing to the ultimate sustainability of the planet .

3.4 THE STATUS OF ENVIRONMENTAL EDUCATION IN ZAMBIA

As stated earlier, the history of EE is very clear. The emphasis from the key players, is the provision of compulsory environmental education system as a solution to environmental problems. Jensen et al (2002) agrees with this notion and points out that EE now has the status of being a generally accepted ingredient in many if not in most countries' compulsory education system. This is the impression from the wide excerpt of the Rio Declaration UNCED (1992). This judgment could also be rooted in knowledge

about the many national and international follow-ups since the Tbilisi declaration back in 1977, partly reported in running issues of *Connect*, (UNESCO 1977-2000). Jensen et al (2002) argues further that, when consulting people close to the real situation in a country for first hand information, the official description is said not to reflect the real situation in the country, underlining that practice is far from the intentions of official documents and declarations. Namafe (2006) points out that, the field of EE is relatively new in Zambia, therefore, attempts to mount programmes and resources for it are also new. He further, argues that some of the issues to be examined by EE in Zambia are themselves, however, old. The reason for this discrepancy was often explained during EE conferences as belonging to one or more of the following aspects:

- poor governmental funding ;
- insufficient teacher training (pre-service and in-service);
- no attention to EE at the school and teacher level;
- insufficient teaching materials;
- difficulties for the EE curriculum to compete with quest for improving the learners' information, communication and technology and ;
- skills (ICT) or other educational areas with much current focus from the community.

Such discrepancies between government rhetoric and reality might be more of the rule than the exception regarding many educational areas. In all cases it underlines the importance of combining political top down manifestations with bottom up approaches building on the professional interest of the teacher and the role as a reflective practitioner Jensen et al (2000).

Chipili (2006) quoting Gupta (1998) concurs with Jensen and states that; better environment is possible only when backed by legislation, government machinery and public awareness and participation. He further points out that, the nature and importance of EE requires participation at all levels to include national governments, provincial and local administrators, academics, the legal profession, the press, the business community and the local inhabitants because all these live in the era of ecological deprivation.

According to Namafe (2006) ,one major challenge for EE in Zambia is that, our country at the moment lives in a philosophical vacuum where Zambia's uniqueness (difference) has not yet been articulated, much less anchored to any well articulated and fundamental metaphorical vision that could influence, most areas of our existence such as upbringing, education, spiritual life, science, commerce and politics on the one hand, and National ideology, strategic plans like national development plans and national policies of various types, on the other. He emphasizes, however, that it is only when a country weaves its own national ideology based on the values, customs and aspirations of its people that it can be set on a path to all rounded national development. (A glance at the United States of America's ideology, concept of the 'American Dream').

3.5 INSTITUTIONS INVOLVED IN THE PROVISION OF EE IN WASTE

MANAGEMENT IN ZAMBIA

Following what was happening worldwide, Zambia was activated into decision-making and actions towards the protection of the environment in 1985 through the production of a National Environmental Strategy. In 1990 Worldwide Fund for Nature (WWF-UK) through the Ministry of Education, agreed to sponsor a training program which offered

two-week in-service courses to teachers for a period of five years. The National Strategy was thought to be partially implemented. Then in 1993 the Ministry of Education (MOE) reviewed the whole school curriculum where environmental education themes were infused in environmental science and social studies CDC (2005).

There are many private and government institutions and organizations involved in the provision of EE and environmental awareness in Zambia. This particular study was only interested in the institutions which provide EE to formal education institutions such as: The University of Zambia (UNZA), Curriculum Development Centre (CDC), National In-Service Teachers College (NISTCOL) and Mufulira College of Education.

CDC in the Ministry of Education reviewed the school curriculum to infuse environmental themes. It developed localized curriculum with the help of the community, developed teaching notes for teachers like the current programme at Mufulira Teachers' Training College, and created a National Committee for Environmental Education. NISTCOL has developed modules for distance learning and supplementary readers for learners. Mufulira College of Education has developed lesson guides which were hoped to raise the teachers' and pupils' attitudes towards protecting our environment. UNZA, School of Education was currently training students at post graduate level in environmental education and plans were under way to introduce the course at undergraduate level. The University of Zambia advises NISTCOL-Chalimbana on environmental education issues on their module taught through distance learning to the primary school teachers and is a member of the editorial board for the Southern Africa Environmental Education Conferences, and advises MOE on curriculum issues on the localization of the curriculum involving environmental issues (MOE 2006, WWF 2006).

This kind of EE is general in nature and did not address specific needs in waste management. Therefore, its relevance to the present study is minimal.

EE is a very wide field of study which encompasses concepts like Waste Management. This study, however, looked at the status of Environmental Education in waste management in the Hospitality Industry.

3.6 WASTE MANAGEMENT IN ZAMBIA

EE is a field that embraces waste management. Issues of waste management are better understood by those who have studied EE. According to ECZ (2001) Zambia is producing more waste now than ever before. The rapidly increasing quantities of waste generated due to industrialization and population growth during the last few decades has become a major concern for Zambia's environment. The ZNTB revealed that the hospitality industry in Zambia grew by an average of 4-5% between 2004 and 2006. Further highlights by ECZ (2001) show that the annual average rate of increase of this waste in Lusaka alone was increasing and was expected to grow from 220000 tones in 1996 to 530000 tones in 2011 giving an increase of 141%. This has greatly overwhelmed the municipality resulting into its failure to fulfill its obligations concerning solid waste management due to limited capacity hence the coming in of franchise contractors. LCC (2001) and ECZ (2001) further stated that, the remaining uncollected waste has become a major concern for the responsible authorities as this has caused several outbreaks of cholera and other diseases and a general deterioration of the environment especially in the peri-urban areas and the adjoining high- density "compounds".

As can be seen, this literature is not specific to EE in waste management in the hospitality industry in Zambia. However, literature on general solid waste in Zambia should suffice to show the extent of the problem the study was addressing. In trying to do so, the study looked at EE in waste management in selected lodges and hotels in Lusaka.

Hotels and lodges in Zambia fall under the Ministry of Commerce Trade and Industry. This Ministry registers and gives operational licenses while the Tourist Board recognizes those hotels and lodges that are suitable for tourist visitors (ZNTB 2007). Apart from some lodges, all the hotels in the study are registered tourist destinations in Zambia. The state of such hospitality facilities should be attractive and environmentally acceptable for tourist destinations. A close look at Table 1 which was prepared in 1996, showing the accumulation of waste in different areas, one can see that a lot of waste was generated from the hospitality industry.

Table 1. Estimated yearly quantities of waste generated in Lusaka and its density (1996)

Category of Waste	Estimated Quantities (tons/year)	Percentage of Total Quantity	Density (kg/m3)
<u>Domestic:</u>			
High Density	169 143	69.50%	395
Medium Density	36493	15.00%	309
Low Density	13678	5.60%	447
<u>Trade and Industry:</u>			
Hotels	1 392	0.60%	277
Markets	1 1783	4.80%	207
Industry,commerce	5 559	2.30%	51(1)

Source: ECZ (2001) State of Environment in Zambia 2000

From 1996 to 2006, one can conclude that this number has doubled due to the increase in the number of hotels and lodges following the 2005 Visit Zambia Campaign ZNTB (2005).

3.7 INSTITUTIONS RESPONSIBLE FOR WASTE MANAGEMENT IN ZAMBIA

According to ECZ (2001) The Environmental council of Zambia and City Councils are the major key players in waste management. The Environmental Council of Zambia was established as an autonomous body through the enactment of the Environmental Protection and Pollution Control Act (EPPCA) No.12 of 1990 (CAP 204) of the laws of Zambia, to among others, regulate and coordinate environmental management and promote public awareness to environmental protection. Furthermore, ECZ (2001) explains that, the Local Councils are responsible for solid waste management in the cities while ECZ regulates transportation disposal of waste and other environmental issues. In Lusaka, ECZ (2001) revealed that other organizations such as NGOs and Community Based Organizations are also involved. They collect waste in peri-urban areas while private enterprises, Service companies and individuals are under contracts.

These include:

- NGOs like Care International.
- Zambia Waste Management Association (ZWMA).
- The Sustainable Lusaka Program (SLP).
- Community Based Organizations (CBOs)
- Franchise Companies, such as Clean Fast Ltd, Citimop and Schweitzer Ltd.
- Donor agencies like: NORAD, Irish Aid, USAID and Danida.

According to ECZ (2001) the environmental Protection and Pollution Control Act No.12 of 1990, amended in 1999 is the principle law on environment and came into effect in 1992. This therefore, provides requirements for handling of waste such as the licensing or

permitting process for collection, transportation, treatment and disposal of waste. It states further that, other supporting piece of legislation with regard to waste management include the Local Government Act of 1991, Public Health Act of 1930, Mines and Minerals Act of 1995, National Health Services Act of 1975.

Table 2 gives a summary of supporting pieces of legislation in the field of waste management in Zambia.

Table 2. Pieces of Legislation Associated with Waste Management in Zambia

Name of legislation	Area of coverage
Public Health Act of 1978	Prevention and suppression of diseases
Local Government Act of 1991	Establishment of local authorities and local government administrative system
Ionizing Radiation Act of 1975	Protection of public from dangers of ionizing radiation
Mines and Minerals Act of 1995	Granting of, renewal and termination of mining rights

Source; ECZ (2004): National solid Waste management strategy for Zambia

3.8 ENVIRONMENTAL COUNCIL OF ZAMBIA NATIONAL WASTE MANAMGMENT STRATEGY

Legal frame-work of waste management in Zambia

According to ECZ (2000) there were basically three relevant acts that set out the legal frame-work to the management of waste in Zambia. These were the Environmental Protection and Pollution Control Act (EPPCA), the Local Government Act and the Public Health Act.

The EPPCA was the principal law on environment. It provided for powers of ECZ on solid waste to:

- formulate and provide standards on the classification and analysis of wastes as well as formulate and advise on standard disposal methods and means;
- regulate the handling, storage, transportation, segregation and destruction of any hazardous waste; and
- provide for the monitoring and regulation of any waste disposal site.

In Zambia, the problems of waste management are vast. ECZ (2000) further explains that, in most Zambian cities and towns heaps of refuse can be seen especially in ditches, along roads or near markets most of which was burnt instead of being collected. Further, indiscriminate dumping and littering had contributed to the situation. Most disposal sites were not operated as sanitary landfills. The increase in population in the urban areas, which was illustrated by the expansion in unplanned settlements, had created a great amount of pressure on local councils who were responsible for providing such services as waste collection and disposal. There was generally a critical deficiency of solid waste

storage receptacles in most of these areas. This situation applied to markets, residential areas, bus stops, and medical institutions, commercial and industrial areas. Only few sectors of towns and cities were regularly served in terms of waste collection.

In view of this situation ECZ (2000) further elaborated that, the Environmental Council of Zambia since its inception in 1991, had embarked on a process of developing a national waste management strategy which would address issues related to poor planning, insufficient government commitment through funding of regulatory institutions, provision of incentives for the private sector as well as poor public attitude. In addition the strategy would provide adequate means through which the “polluter pays the principle fine” must be implemented and enforced effectively. The strategy was meant to be finalized by June 2001. The overall goal was to achieve efficient and sustainable waste management by 2005 through such measures as designation, design and management of disposal site, setting up of poison centre to determine exposure levels involvement of the private sector as well as education and awareness.

The strategy therefore, needed to make all industries responsible for the waste processed or end products generated and ensure that internal control measures developed by industry were strongly expressed. This required relevant authorities putting in place license conditions that would, for example, obligate industry to take back waste products for safe disposal.

To consolidate the strategy, ECZ (2000) stated that, there were measures put in place. The medium and long term measures focused on getting the private sector more involved

in waste management by creating opportunities for engaging in business involving waste.

The immediate measures however included, among others:

- intensification of monitoring of discharges to the environment;
- that public awareness/ sensitization/ education involving multimedia should be continuous, including local languages, to address all levels of society;
- that industry to have pollutants register (to air, water, land) and strive towards volume reduction by treating waste before disposal;
- that a register or database of all waste generators should be developed; and
- capacity should be built in industry through such programs as Cleaner Production.

One major concern in Lusaka, for instance, was the impact of waste littering and dumping on ground water, which was used as drinking water. Another major concern in the spread of diseases such as cholera that were caused by pets and vermin found in littered waste.

For these reasons, ECZ had put a number of waste management inspectors in place. All those found going against these measures were charged ECZ (2000).

In order to achieve the problem of poor solid waste management, which had over the years far reaching effects on both human health and also the environment, the Government of the Republic of Zambia initiated the formation of the National Solid Waste Management Strategy, (NSWMS). ECZ (2001) reports that, it would provide guidance on waste management for all stakeholders in government, industry such as

hospitality industries and business, private sector, non-governmental organizations, learning and research institutions, and the community. The strategy outlined the principles to be adopted in the management of all streams of waste whether domestic, mining or agricultural through waste minimization, reuse, recycling and disposal.

The National Waste Management Strategy was meant to meet the following:

- legal and regulatory framework to deal with producer responsibility among industry such as the hospitality industry;
- waste minimization and recycling;
- well coordinated institutional arrangements;
- establishment of waste database and classification system;
- waste treatment and disposal facilities across the country;
- promotion of cost effectiveness in waste management and;
- public awareness, education and communication

3.9 OBJECTIVES OF LUSAKA CITY COUNCIL WASTE MANAGEMENT UNIT (WMU)

According to LCC (2004) the WMU as the regulatory unit of waste management in the city was mandated to plan, organize, execute (directly) and supervise waste management services in the city of Lusaka, including waste collection from peri-urban and other selected areas in the city, and the management of the disposal site. The WMU operates in a cost neutral manner meaning that the WMU shall generate sufficient funds to pay for all the expenditures required to provide an efficient and affordable waste collection and disposal service in the city.

Functions of the WMU include but not necessarily limited to:

- Management of the disposal site (currently in Chunga) including waste registration and charging of fees for waste disposal
- Collection of waste and fees from the Central Business District (Waste Management District “D”)
- Secondary Collection of waste from peri-urban areas and fees from community based organizations involved in primary collection in these areas
- Contracting of private waste collection companies to collect waste in Waste Management Districts (WMUs) on a franchise basis
- Contract Management and supervision of private waste contractors (Franchise Holders)
- Inspection of all waste management activities and enforcement of waste management regulations (esp. the Waste Management By-laws)
- Develop and oversee the implementation of long-term solid waste management plans on behalf of LCC which will include resource mobilization for capital projects and institutional support;
- Planning of waste management including the elaboration of five year rolling action plans for the implementation of the Strategic Municipal Solid Waste Master Plan (SMSWMP) for the City of Lusaka
- Develop Environmental Auditing/Monitoring systems for solid waste management in the city;
- Conduct periodic Environmental Audits of the SMSWMP and provide directions on future implementation strategies;

- Advise LCC on policy matters relating to solid waste management in the city of Lusaka;
- Maintaining contact with all waste generators but especially with those waste generators that have a direct relationship with the WMU through a contract or memorandum of understanding.

Waste Management Advisory Centre (WMAC)

Further more, LCC (2004) explains that, the SMSWMP of the City of Lusaka is designed to implement an integrated Waste Management approach, designing the waste management system around the Management Hierarchy ranked as follows:-

- Waste Avoidance aimed at reducing the amounts of waste and the risks to Human, Animals, plants and the environment in general thereof at both household and commercial or institutional levels such as the hospitality industry
- Waste Recovery through recycling and material recovery for own use or for business purposes
- Disposal elimination waste fraction from material cycle without damage to the environment.

The WMU Advisory Centre through the office of the Public Relations Officer offers advice to residents on ways of avoiding and reducing waste, effectively reducing on the bills. The unit also offers technical advice on recycling and material recovery for both residents and up coming entrepreneurs. (www.wmu-lusaka.gov.zm)

3.9.1 WASTE COLLECTION SERVICES

Based on its Strategic Municipal Solid Waste Management Plan, two new waste management systems to serve respectively conventional and peri-urban areas have been introduced.

In order to implement an effective waste collection service in the conventional housing and commercial areas in which most of the hotels and lodges in this study and found,

LCC has established partnerships with private waste management companies. To facilitate their intervention, the city has been divided into 12 Waste Management Districts as shown in fig. 1

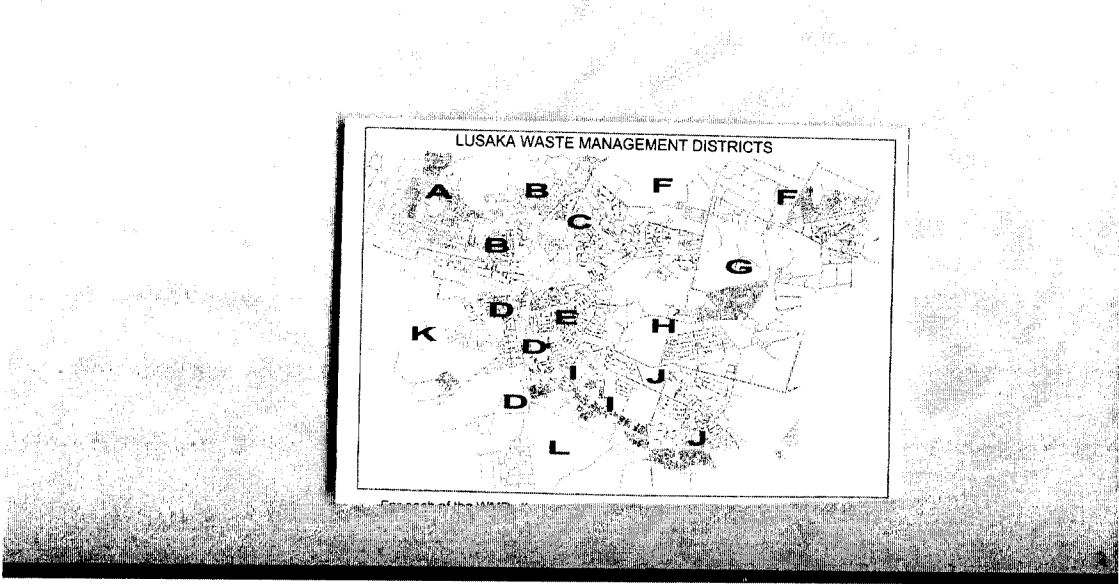


Fig 1. Lusaka City Waste Management Districts

Source: Lusaka City Council Waste Management Unit

The strategic municipal solid waste management plan, which the LCC has developed, distinguishes the following waste management districts:

- A Barlestone, Matero, Lilanda
- B Emmasdale,
- C Chudleigh, Kalundu, Olympia Extension, Roma
- D Kamwala Commercial Area, Central Business District, Thorn Park, Villa Elizabetha
- E Longacres, Northmead, Rhodes Park
- F Chamba Valley, Chelstone, Chudleigh
- G Avondale, Chainama, NRDC

H Handsworth, Ibex Hill, Kabulonga, Sunningdale, Helen Kaunda

I Arakan, Kabwata, Kamwala, Libala, Madras, Ridgeway, UTH, Chilenje

J Nyumba Yanga, State House, Woodlands Extension

K Industrial Areas (Heavy), Industrial Areas (Light)

L Barclay, Lilayi, Makeni

In most of these Districts waste collection has now been out-sourced to private waste management companies through franchise contracts:

- A franchise contract provides a private waste collector with the sole right and obligation to collect and transport waste from all premises in a franchised Waste Management District.
- The waste collector awarded with a franchise contract shall be responsible for setting waste fees for the services provided. The fee level is however, subject to a ceiling set by LCC.
- The waste collector shall determine the type of waste receptacles for example bags, bins or containers, subject to approval by LCC.

To support the new waste management system, LCC (2004) has elaborated the Lusaka City Council (Municipal Solid Waste Management) By-Laws, 2004. On basis of these by laws, which came into force in October 2004, all waste generators in Lusaka residential, commercial outlets, institutions, and industries have to register with their respective waste management companies, utilize their services and pay the corresponding fee. All

other ways of waste disposal, including the use of refuse pits or the burning of waste even in your own yard are no longer allowed.

LCC,(2004) further explains that, the Waste Management Districts (WMDs) are indicated on the map such that clients can locate their area and relate the place where they live to one of the above waste management districts. For each of the WMDs there are maximum waste collection fees. The maximum fees the waste management companies may charge have been negotiated on behalf of a client by the LCC and these maximum fees are included in the Franchise Contracts. Although the council would like to have one uniform fee for the entire city, market forces have led to minor differences between the WMD. For residents living in low-density areas, depending on the WMD they live in, the fee varies between roughly K35, 000 and K40, 000. Fees for medium and high density areas are in general lower.

For producers of non-residential waste the agreed maximum fees depend on the type of receptacle (waste bin or waste container). Generally, the larger the container used, the higher the fees paid.

3.9.2 Education Activities

LCC (2004) explained that the WMU conducted some education programmes in Waste Minimization and Waste Recycling by informing their clients how they could reduce their waste through reuse and by separating waste from non-waste. Also to avoid collecting and disposing of soil, stones and garden waste. Some of the waste could be used to make another product, hence create employment for one.

3.9.3 Waste disposal in Lusaka City

Chunga Site is the only licensed and designated site for waste disposal. At the site, waste is compacted and covered with appropriate soil. This is the only site where burying of waste is allowed. Therefore burying and burning of waste at any other place, even on ones own premises, is an offence LCC (2004). In search for literature specifically relevant to the present study, it is necessary to examine waste management at global level.

3.10 WASTE MANAGEMENT IN SOME PARTS OF THE WORLD

Waste originates in people's daily activities and their industrial operations and accordingly, the quantity of waste generated and it's varieties in a particular area depends largely on the population size and on the scale and nature of industrial activities in that area. Generally, the quantity of waste generated is proportional to the magnitude of such activities. Hence an accurate grasp of the nature of waste is essential for an understanding of the mechanism of waste generation and the necessary proper disposal of the waste.

According to ECZ (1997) Solid waste is discharged material which has no value to the person(s) abandoning it. It can be classified into general waste, domestic\household, commercial, institutional, industrial, litter\street cleaning waste, agricultural waste, construction and demolition debris and hazardous waste.

According to ECZ (1997)municipal solid waste or general waste is a generic term applied to all urban\municipal waste that is produced within the domain of local

authorities. It comprises rubble, garden, domestic, and litter, commercial and general dry business\industrial waste. It may also contain small quantities of hazardous substances scattered within it, for example, used oil, paints, batteries, insecticides, weed killer and medical waste discarded on domestic and commercial premises. Institutional waste refers to solid wastes generated by educational, health care, hotels and lodges and other institutional facilities. It may contain inorganic and oily waste and includes packaging materials, food and office waste.

The Environmental Conservation Act no 73 of (1989) defines waste as, *any matter, whether gaseous, liquid or solid of any combination thereof, originating from any residential, Commercial or industrial area of agricultural identified as an undesirable or superfluous by products, emissions, residue or remainder of any process or activity*(ECZ (2001).

Effective waste management is a good way to improve environmental performance whilst saving money. However, it is clear from the literature reviewed that in Zambia waste management has not yet been divided into its categories of origin or other factors. This makes management of waste difficult, but studies in North Carolina have shown how easy waste management is because of the manner in which it is managed (www.bac.ncsu.edu/progms)

Solid waste management legislation passed in 1989 and amended in 1991 in North Carolina set goals for statewide waste reduction and established a hierarchy of strategies

for reducing solid waste. The goals are to reduce the amount of municipal solid waste by 25 percent by June 30, and 40 percent by June 30, 2001. Reducing waste at its source (that is, preventing the production of waste materials) is the preferred solid waste management strategy, followed by recycling, reuse, and compositing. The least desirable alternatives for managing wastes are incinerating them and depositing them in a landfill.

State law also bans yard debris, whole tires, used motor oil, lead-acid batteries, and large appliances from landfills. More than a dozen North Carolina counties and municipalities have banned aluminum cans, antifreeze, and steel cans from incinerators and landfills and established bans or penalties for disposing of cardboard boxes and other recyclable materials in landfills Sherman (1996).

As can be seen more specific literature on EE in waste management in hospitality industry exists at international level. This shows that the field of EE in waste management in hospitality industry is still new to Zambia and this study is among the pioneers. The case studies below will help to illustrate the role of EE in waste management in the hospitality industry.

Many hotels are discovering that their environmentally responsible practices can attract convention and conference business. For example, management of the Boston Park Plaza Hotel and Towers estimated that their waste reduction programme attracted \$750,000 in new business during its first two years because of clients' desire to support "green" business.

You can also save a significant amount of money by reducing waste and recycling waste materials. The greatest savings result from reductions in trash hauling fees. For example,

after the Hilton Hotel at Walt Disney World Village began its recycling programme, its garbage collection fees dropped by 80 percent from \$6,000 a month to \$1,200 a month. You can also save money by reducing the amount of materials wasted, and you can make money from the sales of recyclable waste. The amount saved will depend on the market value of the materials recycled, the availability of local markets for the materials, your location, landfill tipping fees, the cost of recycling containers, and the charges for collecting the materials. (www.ncsu.edu/progms).

North Carolina hotel and motel operators are wise to consider waste reduction and recycling programme for several reasons – complying with state waste management laws and regulations, improving their image among customers, saving money, and protecting the environment. The following case studies testify to this.

3.10.1 Grove Park Inn waste management programme

The 510-room Grove Park Inn began its recycling program in 1991 and hired a full-time recycling coordinator in August 1992. During 1993 the hotel recycled cardboard, aluminum cans, glass bottle, white, colored, and computer paper, plastic ink cartridges, and kitchen grease and solid fat. The hotel also practices “recycling”, reuses waste material, buys recycled products, and conserves water and energy. . (www.ens-newswire.com)

3.10.2 Royal York hotel waste management programme

In 1929, when the Royal York Hotel officially opened, it was considered a trendsetter. Three quarters of a century later the Royal York is still a trendsetter. Located in the heart

downtown Toronto, this grand old hotel possesses an environmental programme that rivals some of the most environmentally conscious operations in the world. In fact, according to Melanie Coates, director of communications at the hotel, the staff successfully diverted 73 percent of its total waste from landfill sites in 2002.

The Royal York is one of 41 hotels owned by Fairmont Hotels and Resorts, now known as Fairmont Hotels & Resorts, began developing green programme at its hotels throughout Canada.

The company began by forming environmental committees at each hotel and then conducting nationwide environmental audits. Company officials sought advice from professional environmental consultants and the cooperation of employees to begin the process of green hotel operations.

What emerged from the committees, the audits, and the consultants' reports was a programme of waste and resource reduction and recycling.

Purchasing policies emphasize the elimination of hazardous chemicals and synthetic perfumes, a conversion to unbleached and recycled paper, and the replacement of aerosol products with alternatives that do not deplete the ozone layer.

For the hotel's seven restaurants, local farmers supply some organically grown foods, and the kitchen staff works to minimize water use and eliminate waste. One of the ways the kitchen avoids packaging is by using refillable four foot wide containers to hold vegetable oil and liquid shortening, called fat vats. These containers are located near an outside window that permits a delivery truck to place a hose through the window to fill up the vats.

In the hotel's cycle of use and reuse, any left over kitchen grease is not washed down the drain. Instead, the grease is saved for a company that picks up the oily waste for use in its soap products.

Guests are asked to help the Royal York with energy and waste reduction. Each guest room has a recycling box and instructions on the box informing guests what to place inside.

Every bathroom bears a card that asks guests to consider reusing towels in order to lessen the amount of laundry detergent being washed down the drain and into the environment. A card is placed on each bed that advises guests that bed linen will be changed on a daily basis by request only.

Every day, the content of hundreds of garbage pails and recycling boxes is sent down to the basement of the Royal York. Here a small staff of dedicated employees sorts through the garbage, separating the recyclable items from the non-recyclables.

Hotel's environmental management system requires the staff to find other uses for its castoffs. Food scraps are ground up and given to a company that turns scraps into organic material for use in flower and garden beds. An untouched food is picked up every day of the year by Second Harvest Food Bank, which distributes the food to 27 local charities.

The adopt-shelter programme provides thousands of items such as beds and chairs to the victims of domestic abuse who wish to make a new start. Many items that cannot be repaired in the basement of the Royal York for use in the hotel often see a new life, like the velvet curtains from a ballroom that became a local school's stage curtains.

An environmentally friendly conference programme, dubbed Eco-Meet, was developed to assist meeting planners in conducting reduced waste conferences. Options include menus featuring a 50 percent reduction in animal protein and vegetarian cuisine, meeting room recycling stations, biodegradable corn pens, food and beverage service that uses no disposable items, guest room environmental services, and ecotourism activities for meeting delegates.

From its rooftop herb garden to its basement recycling programme, the Royal York employs an Environmental Management System (EMS) that could be the standard in environmental action within the industry. Fairmont Hotels and resorts has created “The Green Partnership Guide” as a handbook for employees and all those who wish to make an environmental difference.

Environmental management systems were first developed in the 1990s as a means for companies to implement environmental policy. An EMS provides a company’s managers with a framework for sustainability, improving an organization’s resource and waste management, emissions and pollution control. (www.ens-newswire.com)

3.10.3 Chokhi Dhani hotel waste management programme

Chokhi Dhani, a fine hamlet is a five star ethnic village resort in Jaipur. It was faced with the problem of huge quantities of waste produced on daily basis and its disposal. Throwing of waste outside the hotel, not only created bad odor but was also an agent for inviting insects and germs. The local authorities responsible for pollution control had also served notice on them.

Mr. Rakesh Mehra, General Manager (Hotel Operation) approached Morarka Foundation, a leading resource organization known for vermiculture technology development to take up “Scientific Solid Waste Management” of their resort in May 2003.

The expert team visited the resort in the first week of June 2003 to discuss the details of waste generated by them. Detailed discussions were held to assess the solid waste generated by the resort into two categories i.e. kitchen waste and garden waste. During subsequent discussions and visits, a detailed plan was developed and an offer was made for turn key execution of scientific solid waste management at Chokhi Dhani by Morarka Foundation.

The work commenced from second week of June 2003, with selection of site. The confidence in the technology and its expected results emboldened the team to set up a pilot project right next to the main entrance; where earlier there was an existing nursery.

After construction of shed (with materials available at the resort) Morarka Foundation began with the treatment of waste beginning from the source itself. Initially, system was designed to treat about 40 kilogrammes of cooked food waste, 60 kilogrammes of uncooked food waste and approximately 100 kilogrammes of horticulture waste generated everyday.

Chokhi Dhani staff was trained in day to day operations under expert supervision of Morarka Foundation. Only after about 3-4 weeks the earthworms started converting waste into vermicasting. In about six months total 7500 kgs of vermicasting was produced.

The recycled waste converted into very high quality soil conditioner was used for their lawns, flower beds, trees, etc. to give lush green effect. The problematic soils, restricting

the choice of plants had turned into sort and fine textured soil enabling planting of many new ornamental plants in the resort.

A small initiative that began in 2003 has been suitably rewarded by its continuance in the year 2004. Today Chokhi Dhani has added one more feather in its cap; it recycles its hundred percent solid wastes. For Morarka Foundation, it has been just one more demonstration of vermiculture technology helping the society to live in a better environment.

This project started with an initial investment of Rs. 650,000/- and is now economically self sustainable. The additional benefit of their saline soil treatment through the use of this vermicast must have added to their joy. (www.morarkango.com)

Some of the common methods used in the waste management practices by the hospitality industry in North Carolina include the following;

- a) Vermicomposting
- b) Worm bin compositing
- c) Backyard bins

3.10.4 METHODS OF WASTE MANAGEMENT PRACTICES IN NORTH CAROLINA

Composting

Compost is organic waste resulting from food or plant sources that are decomposed by worms and other organisms. This decomposed organic matter is soil-like, rich in nutrients and minerals, and can be used in gardens as mulch or land cover to prevent moisture loss

in soils. Types of composting include: vermicomposting, backyard bin composting, and in-vessel composting.

In June 2000 the UBC Compost Project was created to work towards waste reduction through both small scale and large scale composting. At the small-scale, Waste Management promotes composting by holding workshops, consulting, and newsletter, The Rind. At the large scale, the department has invested in an in-vessel composting facility located at UBC Campus.

Vermicomposting/Wormbin Composting

You can purchase a worm bin or you can build your own. Two things to consider when selection a bin design are the amount of food scraps you generate and where the bin will be located. The amount of food scraps will determine the size of the bin you need, and location will determine whether or not the bin needs to be insulated.

Worms can process a wide range of organic materials as long as the materials are not too salt or too acidic. Fruits, vegetables, coffee grounds filters, and tea bags all make good worm food. Citrus fruits and peels should be applied in small amount because of their high acidity. Worms and microorganisms will process chopped or ground foods scrap more rapidly than they will process large-sized pieces of food, but given time whole foods will break down. Meat, bones, dairy products, fatty or greasy foods, and pet manure should not be placed in worm beds due to odor and pathogen concerns.

Backyard Bins

A backyard bin is usually a plastic or wooden bin that is placed over grass or soil so that soil organisms can migrate into the compost bin over time to help decompose the organic wastes. This type of composting is similar to worm bin composting, however, it is placed outside, and organisms migrate into the compost bin on their own but with worm bin composting special red wiggler worms are supplied by UBC. Both methods are commonly used by hotel industry in North America. (www.recycle.ubc.ca).

All the literature reviewed about Zambia does not point to EE in Waste Management in hospitality industry .The literature from North Carolina Which is relevant to the hospitality industry has revealed several gaps in EE in Zambia. The Zambian EE does not deal with the treatment of waste .All these areas need to be investigated in order to ensure that good EE practices are done in the hospitality industry in Zambia.

The literature has also shown that each hospitality industry institution has an environmental expert who is employed or hired to manage waste at the institution and deal with other environmental issues.

CHAPTER FOUR

FINDINGS

4.1 INTRODUCTION

This chapter presents the findings of this study which was conducted to determine the Status of EE in Waste Management (WM) in the hospitality industry. The study sought to establish whether there was EE in waste management provided to the hospitality industry, and the type of EE in Waste Management for the Zambian hospitality industry in selected hotels and lodges of Lusaka urban. Further, the study sought to identify the providers of EE in WM and the views of the hospitality industry regarding the type of EE provided to it.

Table 3. Distribution of responses on provision of EE to the hospitality industry

	ECZ	LCC	Frequency	Percentage
Yes	2	2	4	80
No	1	0	1	20
Total	3	2	5	100

Eighty percent (80%) of the providers indicated that they provided EE on waste management to the hospitality industry while 20% indicated that there was no EE provided to the hospitality industry. The EE providers from ECZ were not all agreed on whether EE in waste management was provided to the hospitality industry. The rest 20% who

disagreed were from ECZ while those from LCC all said that EE in waste management was provided.

4.2 Provision of EE in waste management to the hospitality industry

The objective of whether or not there was EE in waste management provided to the hospitality industry was investigated by using several sub-questions whose data is reported below.

4.2.1 Did the hospitality industry receive EE in waste management?

Respondents were asked to state whether or not hospitality industry received EE in waste management. The distribution of responses to this question was as indicated in table 4 below.

Table 4. Distribution of responses regarding reception of EE in waste management

Received EE in WM	Hotels	Lodges	Frequency	Percent
Yes	2	2	4	20
No	7	8	15	75
N/Applicable	1	0	1	5
Total	10	10	20	100

The table above shows that 20% of the respondents acknowledged receiving EE in waste management while 75% indicated that they did not receive EE in waste management. Only 5% could not state whether they did receive EE in waste management or not. Ten

percent (10%) of those who acknowledged receiving EE are hotels and another 10% are lodges. Thirty five percent 35% of those who did not receive EE are hotels and 40% of them are lodges. Whereas there was an outright disagreement and agreement situation among the lodges, 5% of the hotels were not sure about receiving EE in waste management

4.2.2 In-house EE programmes on waste management.

In response to the question of whether or not the hospitality industry offered in-house EE programmes on waste management, responses as given by staff of the hospitality industry are summarized in table 5 below.

Table 5. Distribution of responses regarding provision of in-house EE programme

	Hotels	Lodges	Frequency	Percentage
Yes	6	6	12	60
No	2	1	3	15
No response	2	3	5	25
Total	10	10	20	100

The responses showed that 60% of the institutions offered in-house training, while 15% indicated that they did not offer in-house training and 25% did not provide any answer. Among the hotels 60% indicated that they offered in-house training while 20% did not.

Ten percent (10%) of the lodges indicated that they did not offer in-house training while 60% of them acknowledged offering in-house training.

4.2.3 Guidelines on EE in Waste Management.

In an interview, EE providers (LCC and ECZ) stated that they had institutional guidelines on EE in general which included:

- Guidelines on who to subscribe to
- Receptacles to use in waste management
- How to store waste
- Raise awareness about EE
- Conduct studies and making recommendations on how to improve the environment
- Training specific to organizations
- Advocacy, support to community and networking
- General advise on the new waste management system
- Advise on acceptable ways of handling waste

When asked about how informed the hospitality industry was on EE in WM, the respondents gave the answers shown in table 6 below.

Table 6. Status of hospitality industry on EE in waste management

	ECZ	LCC	Frequency	Percentage
Well informed	2	2	4	80
Not well informed	1	0	1	20
Total	3	2	5	100

Among the providers, 80% of them felt that the hospitality industry was well informed about the EE while the hospitality industry was not well informed.

4.2.4 Inclusion of EE in waste management in the guidelines

The findings to this question were similar to those shown in table 6 above.

Eighty percent (80%) of the providers indicated that the EE provision was accompanied by guidelines while 20% said they were not accompanied by the guidelines.

In the interview, providers claimed that their guidelines on waste management included;

- Whom to subscribe to
- The kind of receptacles to use in relation with the kind of transport
- How to store waste in relation with the collection system
- Awareness about environmental education
- General advice on new waste management
- Methods of handling solid waste.

4.2.5 Researcher's observations on practices of EE in waste management in the hospitality industry

Physical observations showed that all hotels and lodges except the Taj Pamodzi hotel handled their waste in a similar manner. Both dry and wet waste was collected from various guest rooms in small waste bins, waste bin liners and waste baskets. These waste bins and baskets were not labelled, so guests threw any type of waste in them. The small bins and waste baskets were emptied into bigger waste bins at designated waste collection points or rooms in readiness for collection by contractors who dumped the waste at the Chunga landfill site. LCC was the only contractor which had supplied waste bins to its clientele and had new modern waste management equipment (see picture below) while others supplied bin liners only or asked their clients to buy their own liners and bins. This supports the findings on the second sub question of the first objective where majority of the recipients stated that there was no EE in WM being received in the hospitality industry (See table 4 above).



Plate1. LCC, WMU collecting waste bins from a waste room at a hotel in Lusaka

The researcher's visit to these hotels and lodges disclosed that some of these institutions used open drums without lids. The researcher was not allowed to take any pictures inside these premises. Collection of waste by various contractors was done three times a week, on Mondays, Wednesdays and Fridays. No sorting of waste was done by the hotel and lodge institutions and when asked why they handled waste in the manner they did, all the institutions involved said they did not know any other way of handling waste. This aspect denotes a need for EE in waste management for such respondents.

At one particular lodge, the researcher found out that waste was actually thrown in a rubbish pit after it was emptied from waste liners from various places of the lodge. This lodge was located in the zone which is serviced by a franchise Company. When interviewed, the lodge spokesperson said that they were not aware of the contractors' services and waste management practices.

At the Taj Pamodzi hotel, the researcher discovered that waste was being sorted at various points where it accumulated. Dry and wet waste was put in different waste plastics. When it reached the collection point, called waste rooms, dry and wet waste was put in two separate rooms. In the wet garbage room, left over foods was put separately from other wet garbage and given to pig farmers to feed their pigs. Un touched leftover foods were given to an orphanage which the hotel had adopted. In the dry room, mineral water bottles were separated and collected by a company which took them for recycling. Other forms of waste like paper and bottle tops were put in different bins in readiness for collection by a franchise company. Collection of waste by the contractor was done every after one day or on a daily basis.

Apart from managing waste in such an organized manner, the TATA Company to which the Taj Pamodzi hotel belongs has an environmental policy known as ECO-TAJ, which is basically about environmental awareness to all it employees. The ECO –TAJ states as follows:

A TATA Company,

Shall strive to provide a safe and health working environment and comply in the conduct of its business affairs, with all regulations regarding the preservation of the environment of the territory it operates in.

A TATA Company shall be committed to prevent the wasteful use of natural resources and minimize any hazardous impact of the development, production, use and disposal of any of its products and services on the ecological environment.

At the only designated Chunga landfill, it was observed that the waste received was not sorted out. Both dry and wet waste including other types of waste were carried in one container and off loaded on to a common waste heap where vendors and other scavengers sorted and picked out whatever they wanted. (See pictures below)



Plate 2. Scavengers scramble for items from the waste being offloaded at old Chunga landfill

The dominant part was from the hospitality industry. This tended to be wet and caused leaching. There was a lot of water coming out of the heaps as the waste was decomposing.

It was observed that as the trucks carrying waste were arriving at the dump site, they were weighed to determine the volume of waste to be dumped. However, the waste was mixed as the collection trucks picked waste from different points in the same localities (see plate 4 below).



Plate 3. Waste left on the heap after scavengers had sorted and picked whatever they wanted

At old Chunga landfill the researcher was informed that most of the waste which reached the disposal point was from the hospitality industry. This tended to be wet and caused leaching. There was a lot of water coming out of the heaps as the waste was decomposing.

It was observed that as the trucks carrying waste were arriving at the dump site, they were weighed to determine the volume of waste to be dumped. However, the waste was mixed as the collection trucks picked waste from different points in the same load.(see plate 4 below)



Plate 4. LCC, WMU waste truck on Weigh Bridge at old Chunga landfill

4.3 Type of EE offered to the hospitality industry in waste management

The response showed that the following type of EE in general was offered to the hospitality industry, although some topics touched on waste.

- Pollution reduction
- Methods of waste disposal
- The need for quality environment
- Basics of waste management as well as natural resources management

4.3.1 Areas and topics covered in EE by the EE providers

The following were identified as areas and topics covered:

- Waste generation

- methods of waste treatment
- waste collection, transportation and disposal
- waste minimization
- recycling
- environmental law in Zambia
- business strategy
- multilateral environmental agreements
- community participation
- private sector participation

4.3.2 Curriculum offered during in-house training by the hospitality industry

Most of the respondents had no answers to the questions which were asked. However, the few that answered gave the following topics:

- waste management
- effects of waste on the environment
- waste recycling
- basic sanitary disposal and hygiene lessons
- basic cleanliness

4.3.3 Involvement of guests in in-house waste management

Respondents from the hospitality industry were asked to state whether or not they involved their guests in in-house waste management.

Details of responses given are recorded in table 7 below

Table 7. Involvement of guests in in-house waste management

	Hotels	Lodges	Frequency	Percentage
Yes	2	4	6	30
No	8	6	14	70
Total	10	10	20	100

The findings revealed that 30% of the institutions said that they did involve their guests in in-house waste management, while 70% said that they did not. Ten percent (10%) of those who said yes were hotels while 20% were lodges. Of those who did not involve their guests in in- house waste management 40% were hotels and 30% were lodges.

The following were the forms in which the hospitality industry said they involved their guests in waste management

- Provision of waste bins and waste baskets in the guest rooms, bars, corridors, and restaurants.
- Provision of sanitary bins in the toilets.

4.4 Institutions providing EE in waste management to the hospitality industry

The hospitality industry respondents indicated the following institutions as providers of EE in waste management. See table 8 below

Table 8. Institutions providing EE in Waste management to the hospitality

Industry				
Institution	Hotels	Lodges	Frequency	Percentage
ECZ	1	1	2	10
LCC	1	1	2	10
Franchise Company	0	1	1	05
No Response	8	7	15	75
Total	10	10	20	100

Ten percent (10%) of the hospitality industry institutions indicated that EE was provided by Lusaka City Council. Another 10% indicated that it was provided by the Environmental Council of Zambia. Five percent (5%) of the institutions indicated that this was provided by Franchise Companies which deal with waste collection in conventional areas in Lusaka City. Seventy-five (75%) of the institutions gave no answer to the question about who was the provider of EE to their institutions.

4.4.1 Effectiveness of the provision of EE in waste management to the hospitality industry

On the effectiveness of the provision of EE in waste management, the hospitality industry response was as presented in table 9 below.

Table 9. Effectiveness of the provision of EE in Waste Management

	Hotels	Lodges	Frequency	Percentage
Effective	6	5	11	55
Not effective	3	2	5	25
No response	1	3	4	20
Total	10	10	20	100

Overall, distribution of responses on the provision of EE in waste management to the hospitality industry showed that it was effective because the majority (55%) of institutions indicated that it was effective while a small proportion (25%) indicated that it was not effective and 20% were non committal. Thirty percent (30%) of the overall were hotels while 25% were lodges, which indicated that there was effectiveness. Fifteen percent (15%) of the hospitality industry institutions were hotels and 10% were lodges which indicated that the provision was not effective. Fifteen percent 15% of those that were non committal were lodges and 5% were hotels.

4.5 Hospitality industry's assessment of EE in waste management provided

When asked to assess the EE in waste management provided to the hospitality industry, respondents from the hospitality industry felt that:

- there wasn't enough communication between service providers and the hospitality industry
- there was little importance placed on the relevance of EE on waste management
- lack of commitment by both parties
- ignorance on the part of the hospitality industry
- insufficient training of staff in EE
- lack of efficient services by waste management service providers
- weak monitoring system by providers
- lack of knowledge by service providers on handling of waste at generation points
- respondents from the hospitality industry strongly felt that the kind of EE provided was not meeting the needs of the hospitality industry because it was not tailored specifically for their industry. The EE provided was rather general in nature.

4.5.1 Hospitality industry's assessment of the providers of EE on waste management.

When asked to assess the providers of EE to the hospitality industry, the respondents revealed that:

- there was lack of EE knowledge among the EE providers.

- The EE providers were not educating the general public at large on EE in waste management
- the presence of EE providers was not adequately felt by hospitality industry
- there was little effort by EE providers to improve their services to the hospitality industry.

The meaning of these findings is interpreted in the next chapters.

CHAPTER FIVE

INTERPRETATION OF THE FINDINGS

5.1 INTRODUCTION

This chapter interprets the findings of the study reported in chapter four on the status of EE in waste management for the *Zambian hospitality industry*, focusing on the case of *Lusaka urban*. The findings are discussed under sub-headings derived from the study objectives and research questions which included: - whether or not there was EE in waste management provided to the hospitality industry, the kind of EE in waste management offered to the hospitality industry, institutions that provided EE in waste management to the hospitality industry and, finally, an assessment of the hospitality industry's views on the type of EE provided to it.

5.2 EE in waste management.

The interpretations of the findings on the first objective will be discussed from different perspectives, namely that of the EE providers, recipients of EE and that of the researchers' observations.

5.2.1 EE Providers perspectives on whether or not there was EE in waste management provided to the hospitality industry in Zambia.

The findings of the study revealed that there was EE in waste management provided to the hospitality industry. The majority of EE providers were of the view that the

hospitality industry received EE in waste management. However, this perspective is at variance with the findings among the recipients; the hospitality industry. The hospitality industry contends that it does not receive EE in waste management from the EE providers. This variation suggests a situation where one hand does not know what the other one does. It is a paradox which leaves a lot of questions unanswered. The first question is whether there is interaction between the two bodies. The position suggested by this mismatch is that there are other beneficiaries to the EE provided. We can safely state that, the EE in waste management provided by the providers in question does not reach the hospitality industry. It also goes to show that there is no interaction between the EE providers and the hospitality industry in as far as the provision of EE in WM is concerned.

The EE providers further contend that they provided EE together with guidelines. This was also refuted by the hospitality industry. The hospitality industry does not acknowledge that they received guidelines on EE in waste management. This shows that the EE provider does not address its EE in Waste management to the hospitality industry. The guidelines are likely to be general in nature and not specific to the hospitality industry. In which case, the EE providers have no way of ensuring that the hospitality industry is catered for in the guidelines because they are general.

5.2.2 Perspectives of the hospitality industry on whether there was EE in waste management provided to the hospitality industry

The findings on this objective revealed that the majority of the hospitality industry did not receive EE in waste management. Instead respondents from the hospitality industry claimed that they offered in-house EE programmes on waste management. As mentioned above the recipients have not acknowledged receipt of EE in waste management. The gap between the EE providers and the recipients arises from the lack of interaction between the two parties. The hospitality industry has instead its own EE in waste management provided in-house. The curriculum of the in-house EE in waste management does not include what the EE providers claim to be offering. The guidelines of the EE providers and the topics taught by the hospitality industry in their in-house EE in WM programmes are not the same. The two institutions are running different programmes which are not compatible.

On site observations made by the researcher did not support the presence of EE in waste management in the hospitality industry. All the lodges and most of the hotels did not demonstrate effective use of basic EE in waste management. There was no sorting of waste from the generation points of waste to its storage. Even the Taj Pamodzi hotel which showed some basic practices in waste management, such as sorting the waste, still channeled all the waste to the central collection point enroute to the waste landfill. This practice is contrary to practices in North Carolina where individual hospitality institutions had the responsibility of managing their waste from generation to its final disposal (Sherman 1996). The hospitality industry of North Carolina was not only interested in waste management at hotel level but they were also interested in enjoying the benefits of

proper waste management practices (www.ncsu.edu/proms). Their waste management practices included re-use, recycling and different types of composting methods. In this way, the individual hotel took a lead in waste management practices. For example, in Canada, the Royal York Hotels as one of the 41 hotels owned by Fairmount hotels and Resorts started developing its green programme at the hotels.

The effort noted to sort waste by the Taj Pamodzi Hotel can be associated to its international standing as a member of the TAJ group of Companies. Through that connection the hotel, like those in North America, had an Environmental policy which was displayed in the hotel lobby for all to see and read. The staff of the Taj Pamodzi hotel was reminded to live by the policy while the clients were also expected to live by the hotel plans of handling waste. The existence of a policy at the TAJ Pamodzi is a commitment which shows that some members of the hospitality industry were willing to abide by guidelines that could help them practice a good EE. The ECZ and LCC had not placed any reminders at the hospitality industry premises on the need to uphold best practices of EE in waste management.

The descriptions of different perspectives noted above implied that the views of EE providers, the benefiting institutions and the observations by this researcher were not the same. Whereas the EE providers claimed that EE in waste management was provided to the hospitality industry, the hospitality industry did not acknowledge receipt of EE in waste management from such providers of EE. The researcher's observations also showed that there was no effective EE in waste management that was being practiced by

the hospitality industry. This situation showed that there was a gap or mismatch between the EE providers and the beneficiaries of EE in waste management.

This gap/mismatch can be explained by the distance created by the providers of EE in waste management and the recipients of such education through the creation of franchise companies. LCC (2004) alluded to the creation of waste collection zones based on its SMSWMP. The franchise companies were more concerned with waste collection than the provision of education to their clients. This situation signifies the need for establishing EE in waste management for the hospitality industry of Zambia. This point leads to the next discussion.

5.3 Institutions that provided EE in waste management to the hospitality industry

The study revealed that ECZ and LCC were the providers of EE in waste management to the hospitality industry. However, the majority of respondents from the hospitality industry did not acknowledge LCC and ECZ as providers of EE in waste management. Although the majority did not name these two institutions as providers of EE in waste management, a few of them did. Through interviews, the researcher also found out that LCC and ECZ were the two quasi government institutions that provided EE in waste management to the hospitality industry. This finding is contrary to the LCC (2004) claim that its WMU conducted educational programmes in waste minimization and waste recycling by informing their clients on how they could reduce their waste through reuse and by separating waste from non waste, and how waste could be used to make another product. If such education had been offered, by LCC (WMU) then people in the hospitality industry were merely not putting it into practice. Alternatively, it could also

mean that the WMU had the plan of educating the hospitality industry about waste management on paper which it had not yet disseminated to its clients.

Implications of these findings were that there was very little interaction between the EE providers and the recipients, of such education which made it difficult for the recipients to identify the officially designated EE providers. This also throws in doubt the point of whether the EE provider actually took any EE to the recipients of such education. Had there been sufficient interaction between them, the beneficiaries would not have failed to identify LCC and ECZ as EE providers. Instead of knowing the LCC and ECZ as officially designated EE providers, the hospitality industry came to know the franchise companies which did not provide EE themselves.

5.4 Type of EE provided to the hospitality industry on waste management

The ECZ and LCC which were identified as the providers of EE in waste management were associated with providing general EE in WM. The topics covered were pointing to general waste management, environmental agreements, community and private sector participation and environmental law in Zambia. All this is not specific to the hospitality industry.

The kind of EE on waste management offered in Zambia was generally different from WM offered in Canada and North Carolina. The difference might be in the degree of education and legislature. Whereas solid waste management legislation in North Carolina was passed in 1989 and amended in 1991, set goals to reduce the amount of the municipal waste by 25%, by June 30th and 40% by July 30th 2001. In Zambia no such legislation

had been passed giving specific levels and dates of action. Such legislation would support the provision of specific types of EE in waste management in Zambia, in general and Lusaka, in particular.

The existing legislature about waste management in Zambia did not even include waste management in the hospitality industry. Instead, it focused on other areas such as mining and health.

The implications of such situations were that the hospitality industry which generated only 0.60% of solid waste in 1999 in Zambia (ECZ 2001) was not given much attention. There was a possibility that this type of EE in waste management was being provided to other industries which generated more waste than the hospitality industry. From the discussion above, the amount of waste generated from the hospitality industry was far too small to warrant attention from the providers of EE. An observation at the landfill site revealed that all the waste delivery trucks were weighed in order to generate the necessary statistics regarding the volumes of waste generated from each industry of Lusaka city. The volume coming from the hospitality industry was far too small in comparison with the volume of waste received from other sources at the site.

5.5 Views of the hospitality industry on EE provided to them

According to the results of the study, the majority of hospitality industry observed that the provision of EE in waste management to them was effective. However, a good number of them gave no specific position and another said that it was not effective. The difference between those who observed that it was effective and a combination of those

who said it was not effective, was very small. This implies that there was no outright satisfaction on the effectiveness of the EE provided to the hospitality industry in Zambia.

The implications are that the hospitality industry felt that the EE which was being provided to them was too general and not meeting their needs. This was contrary to the situation obtaining in North Carolina where all the EE in waste management was provided by people within the hotel or lodge, or the hotel management hired a company to provide such education. For example the Grove Park Inn hired a full time recycling coordinator. (www.ens-newswire.com)

In a similar manner, Chokhi Dhani staff received EE in waste management by an expert from Mororka Foundation.

5.5.1 Assessment concerning providers of EE in waste management to the hospitality industry

The hospitality industry viewed the providers of EE as institutions

- That lacked EE knowledge
- That had not educated the public at large in waste management
- Whose presence was not adequately felt by the hospitality industry itself
- Which put little effort to improve their EE services to the hospitality industry

The implications of such circumstances were that the providers of EE and the beneficiaries of such education were not interacting enough. The hospitality industry remained unsatisfied with the work of providers of EE. This partly originated from the inadequacy in the number of EE providers.

According to the ZNTB the hospitality industry at hotel and lodge levels had experienced a growth rate of 4-5% since 2004. This statistic excluded many other institutions in the industry that were not registered by ZNTB. Meanwhile, the EE staffing levels at ECZ and LCC were not good enough to march such a fast growing industry. The kind of training that the EE providers had attended was also seen to be too general in nature and this made the hospitality industry to assess their knowledge in EE in waste management as not being relevant to waste management in hospitality industry.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter gives conclusions to the findings of the study. The chapter further gives recommendations which could act as a guide to the future implementation of EE in waste management to the *Zambian hospitality industry*. The chapter also gives suggestions for future research.

6.2 Conclusions

Based on the study findings, it can be concluded that there is EE provided to the *hospitality industry in Zambia*. However, the EE which was provided was general in nature and was not specifically directed to the *hospitality industry*. Further, the findings lead to the conclusion that the *Zambian hospitality industry* offered in-house EE training programmes on waste management which were relevant to the industry but such programmes were not very effective. EE was provided by quasi government institutions, namely the ECZ and LCC which have no direct or specific interest in the *hospitality industry*. The ECZ enforced environmental by-laws mostly at policy level, while the LCC participated in waste management and education. The study revealed that LCC contracted franchise companies to collect, transport and dispose of waste at designated landfill sites. Plate 5 shows officers of LCC contracted companies busy collecting garbage, while plate 6 shows the transportation of such waste. Plate 7 shows the *Chunga landfill site*. This

helps the study to conclude that the management of waste in the city of Lusaka is of general nature.



Plate 5. LCC, WMU collecting waste at a hotel



Plate 6. Waste being transported to old Chunga landfill site



Plate 7. Waste disposal at old Chunga landfill.

The general type of EE offered to the hospitality industry was more relevant to other industries such as residential and commercial areas which generated more waste than the hospitality industry. However, most of the waste which reached the designated landfill was discovered by the researcher, during the research to have come from the hospitality industry. It can be concluded that this was so as the hospitality industry was more mindful of the consequences of keeping waste in its vicinity. Accumulated waste at hospitality institutions would lead to loss of business and reputation.

The type of EE offered to the hospitality industry does not assist the industry to carry out specific EE activities relevant to it. For example, it was discovered that the hospitality industry did not sort waste from the source. As a result, the waste from the hospitality

industry was of a mixed form at the landfill. The mixed form of this waste led to the leaching effect at the landfill. As a result, in the construction of a new landfill, LCC had included a leach dam which would be treated and managed according to modern technology (see plates 8 and 9 below. The inclusion of a leach dam in the new landfill at Chunga was meant to accommodate waste from the hospitality industry which is mostly in a wet state.



Plate 8. Dumping area at new modern Chunga landfill site.



Plate 9. Leach dam at new modern Chunga landfill site.

The final conclusion of the study was on the assessment of the EE on waste management provided to the hospitality industry. The conclusions were that the hospitality industry's view was that there wasn't enough communication between the EE providers and themselves. As a result, there was lack of commitment by both parties in the provision of EE. There was a weak monitoring system on the EE being provided. On the part of EE providers, the hospitality industry assessed that there was lack of knowledge about the hospitality industry EE needs by the providers. As a result, they remained general and not specific to the needs of the industry.

6.3 Recommendations

This particular subsection provides recommendations and suggestions on how EE in waste management could be enhanced in the Zambian hospitality industry, considering that waste management has become a national issue. The following are the recommendations:

- Providers of EE should effectively provide EE to the hospitality industry by direct interaction and networking with the recipients
- A more specific EE programme in waste management tailored to meet the specific needs of the hospitality industry be provided
- An increase in the number of EE providers in order to ensure effective communication, networking and monitoring with the hospitality industry.
- EE providers should come from within the industry in order to ensure relevance to the recipients.

6.4 Suggested future research

In line with the findings of the study, the following areas of future research are suggested:

1. An investigation into the curriculum content of a professional EE training programme in waste management for the hospitality industry of Zambia.
2. Attitudes of hospitality industry operators towards EE in waste management within their institutions, with special reference to guest houses and motels.
3. An evaluation of the need for EE in waste management for the hospitality industry to be included as part of formal education in Zambia.

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APPENDICES

APPENDIX I

QUESTIONNAIRE FOR HOTEL MANAGEMENT

My name is Mirriam S. Moonga, Masters Student in Environmental Education from the University of Zambia carrying out research on Waste Management in Hospitality Industry. To the would be respondents, please feel free to provide the information requested for because the information needed is strictly for academic purposes and not for general publication.

Kindly answer the questions in this questionnaire as objectively as possible by writing your answers in the spaces provided, where options are given please tick against the answer of your choice.

1. Sex M/F
2. Age _____
3. Position held _____
4. Have you been trained in waste management? Yes/No
5. Which institution did you train from? _____
6. Do you receive any EE in waste management at this hotel/lodge? Yes/No
7. Do you offer in-house EE programmes on waste management to your hotel/lodge staff? Yes/No

8. If yes, what curriculum do you offer? List the topics

9. Do you involve your guests in any form of waste management education?

Yes/No

10. If yes, what form does it take? state

11. What areas or topics in EE in waste management do you cover?

12. What institutions provide EE on waste management to your hotel/lodge? State

13. How effective is the provision of EE in waste management to your hotel/lodge? Very

Effective/effective

14. What is your general assessment of the provision of EE in waste management to you
hotel/lodge?

State _____

15. What is your assessment of the providers of EE in waste management to your

Industry? State _____

APPENDIX II

INTERVIEW GUIDE FOR PROVIDERS OF EE IN WASTE MANAGEMENT

1. Type of institution: government / quasi government / private / NGO
2. Position held
3. Have you been trained in waste management? Yes/No
4. Which institutions were you trained from?
5. What are your institutional guidelines in EE on waste management in general?
6. Do such guidelines include EE on waste management in the hospitality industry?
7. How well informed is the hospitality industry in Zambia about these guidelines?
8. What is your mode of educating the hospitality industry about EE on waste Management in Zambia ?
9. What type of EE do you offer to the hospitality industry?
10. What are the main topics do you cover in EE on waste management?
11. What methods do you employ in teaching about EE in waste management to the hospitality industry?
12. What are the training needs of EE in waste management in the hospitality industry?
13. What problems do you face in educating the hospitality industry about EE in waste management?
14. What is your general assessment of the provision of EE in waste management to your hotel/lodge?
15. What is your assessment of the providers of EE in waste management to your industry?