AN ETHICAL ASSESSMENT OF CURRENT DEATH DISPOSAL BELIEFS, ATTITUDES AND PRACTICES IN GABORONE'S LEDUMANG WARD IN BOTSWANA

BY

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THE UNIVERSITY OF ZAMBIA

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Declaration

I, Wedu Matende, do hereby declare that this dissertation:

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Abstract

Death disposal is the process of dealing with the physical remains of the dead person. It is the act of getting rid of the body before decomposing and starting to emit foul odour that can affect the people around it. Gaborone city, in which Ledumang Ward is situated and is the subject of the case study, was planned for a small population, but has seen an exponential growth in human population and settlements over the last fifty (50) years such that residential areas and cemeteries are placed close to each other presenting a possible risk of cemetery pollution to the health of the human environment, human beings and other living organisms, especially so given the persistence in traditional and Christian beliefs of the people that support attachment to practices of burying the dead.In view of this belief, this study aimed to make an ethical assessment of current death disposal beliefs, attitudes and practices in Botswana with specific reference to Ledumang ward in Gaborone. The objectives of the study were (1) to investigate the current attitudes and practices of people in Ledumang ward with regards to death disposal; (2) to examine if there is evidence of a growing tension between religious beliefs towards death disposal practices and environmental degradation, and (3) to make an ethical evaluation of the findings.

The research was a case study which employed the use of qualitative methodology with an ethical component. Primary data was collected using semi-structured interviews with 30 householders, in-depth interviews with 12 key informants with important knowledge of the body disposal attitudes, beliefs, and practices in Ledumang. The study therefore had a total sample size of 42 participants. Observations of the funerals and the cemetery also took place. Qualitative analysis of the data collected involved description, explanation and interpretation. The land ethic was used in the theoretical framework and applied to the findings for ethical evaluation. Secondary data was collected from relevant books and journal articles.

The findings of the study revealed that burial is still the most common method of death disposal practiced in Ledumang. People are generally not receptive to other forms of disposal due to their traditional and Christian beliefs as the majority of people in Botswana (79.3%) are Christian. The findings relating to the first objective were as follows: (a) burial allows mourning of a loved one, provides a permanent resting place to the deceased, helps with the grieving process, supports religious and traditional beliefs, and acts as a sign of remembrance. People also consider the cemetery to be a source of employment; (b) all the householders were against cremation because they felt it is disrespectful to the body, does not allow for resurrection, is traumatic to the bereaved, does not provide a chance to say goodbye to loved ones, and because it is against their culture. According to the findings, there is no evidence of a major shift between religious beliefs to death disposal practices and environmental degradation, despite the fact that the practices are harmful to the environment. On the other hand, the current burial method can have negative effects on the environment in various ways: by polluting the air, by the use of the embalming liquid and the materials used in the coffins which result in contaminating underground water, by resulting in deforestation and loss of biodiversity, by defacing the natural beauty of the environment and by increasing the shortage of land available for the living; (c) with regard to the third objective, the application of the land ethic to the findings concluded that the way bodies are processed and buried is morally problematic. The study recommended the following measures: (i) revision of the waste management policy to include body disposal; (ii) Gaborone City Council to sensitise the community of Gaborone on the negative effects of the burial methods on the environment; (iii) to raise the level of awareness of residents of Gaborone on the negative environmental impacts of Ledumang cemetery and (iv) to raise awareness about alternative methods of disposing of the dead that are more eco-friendly.

Dedication

This dissertation is dedicated to my loving family. I am deeply indebted to my husband Bathusi Mosotho for the motivation and support he gave me throughout the time of my study. This study would have been difficult to complete without his support. To my children Wame, Bathusi Jr. and my lovely Tsamma for the support you gave to your father during my absence. This work would not have been possible without all of you.

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List of Abbreviations and Acronyms

DDT	Dichlorodiphenyltrichloroethane
ELCB	Evangelical Lutheran Church in Botswana
GCC	Gaborone City Council
LFP	Lynns Funeral Parlour
MP	Memorial Park
PCDD	Polychlorinated Dibenzo-p-dioxin
PCDF	Polychlorinated Dbenzofuran
PM	Particulate Matter
ST	Somarelang Tikologo
UNEP	United Nations Environmental Programme
VDC	Village Development Committee
ZCC	Zion Christian Church

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CHAPTER ONE: INTRODUCTION

1.1 Background

The 1960s and 1970s saw an increasing acknowledgement of the harmful impact of human activity on the natural environment (Carson, 1962; Meadows 1972). This realisation resulted in international conferences beginning with the United Nations Conference on The Human Environment in 1972 which heightened the critical need to transform how humans relate with and utilise the environment. Ever since, there has been increasing concern on environmental sustainability, which has resulted in the development of strategies to reduce waste and improve waste recovery and resource recycling of waste (Friedrich and Trois, 2013). The world is faced with many environmental issues that are threatening the health of the ecosystem and many biologists believe that we are now experiencing the sixth mass extinction (Wienheus, 2020).

One of these environmental concerns is the growing concern about the management of waste. Waste disposal does not exterminate matter but rather relocates or transforms it into gases that may cause greenhouse warming or may have other negative effects on humans, present or future (Rumble et al., 2014). From an ecological perspective, waste is never entirely disposed of; it rather remains a part of the planetary ecosystem in one way or another (Rumble et al., 2014). It is important to understand that the environment is a super-system which every other system on planet earth depends on for their sustenance and whatever is harmful to it is harmful to everything found within it (Ekpo and Is'haq, 2016).

However, human beings are no longer sensitive to the negative impact of their activities on the environment. Many human activities are reducing the sustainability of the natural environment to provide a source of livelihood for living forms. An ever-increasing human population is putting stress on the land, water and ecological systems at large (du Plessis, 2000). Increasing awareness of the effects of human activities may result in conscious changes in how humans carry out certain activities, though there are certain activities over which individual self-management is constrained (Canning and Szmigin, 2010). One such activity is the disposal of dead human bodies. Disposing of the dead has been a necessary public service for as long as humans have lived in communities (Mumford, 1961 as cited in Harker, 2012).

As the global landscape is increasingly populated, it follows that the removal of human remains in urban areas especially becomes a critical environmental issue for all cultures and nations at large (Canning and Szmigin, 2010). Cemeteries have therefore also increasingly become a focus of discussions as an environmental issue. Curl has defined a cemetery as a “burial ground, especially a large landscape park or ground laid out expressly for the deposition or interment of the dead, not being a churchyard attached to a place of worship” (cited in Rugg, 2000, p.260).

Jonker and Olivier (2012) note that little attention is given to cemeteries as possible sources of pollution. Most of these existing cemeteries were sited without thinking about potential risks to the local environment (Ucisik and Rushbrook, 1998). According to Mathews (2015), some of these risks included the spread of toxins underground from embalming fluids which were made of cancer-causing chemicals like formaldehyde, methanol, glycerine and phenol. He went on to say that even the flowers used for decoration during the funeral and later left at the graves were grown with the aid of pesticides. These pesticides could escape into the water and air and cause health effects for nearby animals and even for the workers who grow and pick them. Hence, serious concerns have been raised about the extent to which cemeteries may result in harmful impacts on the environment and on public health (Ucisik and Rushbrook, 1998).

Traditionally Southern African societies have from a long time past maintained an intimate organic relationship with nature by showing greater concern to the workings of the natural ecosystem (Moleele and Ntsabane, 2002). They used simple technologies to harness the environment and their activities worked for them and had little negative impact on the environment. “The system was ecologically balanced as it was not losing products faster than those it could generate” (Moleele and Ntsabane, 2002).

According to Botswana Biodiversity Strategy and Action Plan 2007, there is sufficient evidence that many traditional practices are relevant for biodiversity conservation. These include myths, sacred chants, stories and proverbs, cultural taboos and religious beliefs which reflect a genuine concern for the environment and contribute indirectly to biodiversity conservation. Lately, however, things have taken a different turn and there is evidence that all is not well in the cordial relationship between human activities and the environment. Death brings an end to life thereby turning our physical bodies into waste. Hence, it is important to know whether our post-mortem bodies will be a gift or a burden to the ecosystem. Death is an inescapable phenomenon that affects everyone irrespective of their race and it knows no boundaries. It is the end of the physical life of all living beings.

Death and the disposal of dead bodies are often connected with a religious belief in an afterlife and concerns for the destiny of the soul or the like (Sorensen and Rebay-Salisbury, 2012). Like most Africans, Batswana see death as a transition from the visible physical world to the invisible spirit world where the ancestors live (Evans-Pritchard, 1948; King, 2013). This implies a belief that death does not put an end to a person’s life but instead marks the beginning of another phase of being (King, 2013). The belief is that people continue to exist in the spiritual world in the community of the living dead (Mbiti, 1990).

The belief in life after death is shared by many traditional western religions and indigenous traditional cultures (Baloyi, 2006) and it usually influences important decisions that need to be made concerning the dead body. One such decision relates to the disposal of the dead body. For example, inhumation in Christianity is seen as the most religiously agreeable form of disposal in accordance with biblical references and the Christian tradition that the dead will be resurrected at the second coming of Christ (Sorensen and Rebay-Salisbury, 2012). Canning and Szmigin (2010:1129) stated that although "cultural mores may dictate differences in disposal rites, all individuals around the world engage in this one common yet fundamental activity that is of personal, emotional, social and environmental significance". Rites, such as burial rites, are shared forms of patterned activity which focus on important social values and help in expressing how people view the world and themselves (Davies, 2005).

With reference to Lusaka, the capital city of Zambia, the editorial opinion in the *Times of Zambia* for the 12th May, 2021 stated that according to the World Data Atlas, there were 35,000 deaths recorded in Lusaka in 2020. It noted that 'the lack of land for burying the dead had posed a serious bottleneck for the local authority and had led to the council being forced to look outside the city for alternatives. It continued: 'The desire for more burial space always brings up debates on whether cremation is a simpler alternative to burying the dead, especially with the fast-growing population.' It finally noted very significantly: 'While there are many religious and cultural views that the public have on the matter, it is definitely not misplaced for further exploration and debate as a potential game-changer in disposing of bodies.'

1.2 The situation in Botswana

Botswana has total area of 582,000km^2 and a population of approximately 2,438,882 million people (2022 Population and Housing Census). It is semi-arid "with harsh climatic conditions and a fragile ecosystem" while arable land is "extremely limited" (CSO 2012, 65). According to the 2011 census report, Botswana's crude mortality rate was at 6.35 while the birth rate stood at 2.8 (CSO 2012). According to the 2022 Population and Housing Census, Botswana experiences 39 deaths per day amounting to 14,235 deaths per year. This means that almost all these bodies require space to be buried underground as burying is the commonest practice both under traditional and Christian systems. Consequently, this raises a concern because, whereas many people are being born and others dying, the land is not increasing. The high rate of land development around Gaborone has also led to a reduction in the space available for cemeteries which has resulted in residential areas and cemeteries being placed close together. This has raised the polluting potential of the cemeteries since they have concentrated potential polluters. It poses a health hazard to populations living close to cemeteries as they may be exposed to elevated levels of highly harmful contaminants to human health (Oliveira et al., 2012). Uslu et al. (2009) noted that, unlike other forms of urban land use, cemeteries cannot easily be converted into places with different functions because of their religious and philosophical connotations even where urban profitability is high. Harker (2012) notes that burial is intertwined with the spaces that humans occupy and that cemeteries have throughout history provided open spaces to urban residents.

There are four cemeteries in Gaborone City, three of which are filled up. This means that more space is required to bury the dead. The increase in the number of deaths due to the HIV/AIDS pandemic and road traffic accidents is causing problems for the already stretched cemetery facilities throughout the country. This is going to be even worse because of the current COVID-19 pandemic which is affecting all countries around the world. In Botswana, death disposal practices have never been thought of as having potential to affect the environment despite the fact that they are located close to people. People mostly think of pit latrines, industries, landfills and agriculture as the major pollutants of the environment and rarely think of disposal practices in this context. However, given the need for an increase in the number of burial sites in Botswana and the potential threat that cemeteries may be posing to the well-being of the environment, there is need to investigate whether there is a growing popular shift in the way people are thinking about burial practices.

1.3 Statement of the problem

The worldwide phenomena, that has not spared the African continent, of the mass migration of people from rural areas to urban centres in search for better life prospects, the surge in urban settlements and human populations in cities, the upswing in the outbreak of health epidemics and road traffic accidents, and the subsequent high human mortality rates, have brought with them competing demands on available limited land resulting in the scarcity of burial space in most cities that has led to residential areas and cemeteries being placed close together. The capital of Botswana, Gaborone, that was planned for a small population, but has seen an exponential growth in rural-urban drift, urban settlements and the human population over the last fifty (50) years, with a high incidence of HIV/AIDS, Covid-19 infections, as well as road traffic accidents resulting in many human deaths, is one such African city characterized by this phenomenon of residential areas and cemeteries being placed close together.

Given the growing lack of space to bury the dead, the awareness of the possible threat of cemeteries to the natural environment, and the influence of Christian thinking on traditional African beliefs about death disposal, there is need to investigate and ethically evaluate the extent to which traditional beliefs of death disposal in Botswana may be shifting. Spaces for body disposal and the manner of body disposal have not been adequately addressed in environmental ethics literature despite the potential ethical dilemmas regarding the environment.

1.4 Aim of the study

The aim of the study is to make an ethical assessment of current death disposal beliefs, attitudes, and practices in Botswana with specific reference to Ledumang ward.

1.5 Operational definitions of terms:

- Beliefs: Traditional or Christian beliefs, or a mixture of both.
- Attitudes: A manner of expression which is bodily, emotional and mental. It is more clearly expressed as an emotional stance not easily separated from beliefs.
- Practices: The manner in which beliefs and/or attitudes are expressed in actions.

1.6 Objectives

a) To investigate the current attitudes and practices of people in Ledumang ward with regards to death disposal.

b) to examine if there is evidence of a growing tension between religious beliefs towards death disposal practices and environmental degradation,

c) To make an ethical evaluation of the findings.

1.7 Research questions

a) What are the current attitudes and practices of people in Ledumang ward with regards to death disposal?

b) Is there evidence of a growing tension between religious beliefs towards death disposal practices on the one hand and environmental degradation on the other?

c) What does an ethical evaluation of the findings reveal?

1.8 Theoretical framework

The Land Ethic Theory guided the collection of data and was applied to the ethical evaluation of the findings.

1.9 Methodology

The study used a case study design involving qualitative methods with an ethical component**.**

1.10 Methods

The study involved the collection of data using primary and secondary sources. Primary data were collected through observations and in-depth interviews. Secondary sources were collected from relevant books and journal articles from both the internet and the library at the University of Zambia.

1.11 Significance of the study

Although death is addressed on many philosophical dimensions, burial has not received as much attention despite the ethical dilemmas it poses. By addressing this largely neglected topic from a moral point of view, this study will contribute towards filling a knowledge gap in the literature. The empirical data derived will also be of use to other disciplines interested in the burial of the dead. As no study has ever looked at the nature and extent to which beliefs, attitudes and practices to death disposal practices have been shifting in Botswana, the findings of this study will provide contributions to the body of knowledge regarding death disposal practices in Botswana and their effects on the natural environment with reference to environmental sustainability. It will also help in identifying and avoiding risks to the health of populations in addition to identifying and implementing protective interventions. It will further help to promote responsible discussion with respect to the sustainability of continuing traditional burial practices. Furthermore, the study will generate new findings that will be available for policy makers and other stakeholders so that they can make empirical and ethically informed decision making. Councils will especially find the findings useful. Funeral directors, Churches, environmentalists and community members will become aware of moral problems posed by current burial practices which may prompt them to consider more ethically environmentally friendly body disposal alternatives.

1.12 Delimitations

In view of the COVID-19 pandemic, Focus Group Discussions were not carried out. As a social science project, this study did not enter into the chemical analysis of possible toxins introduced into the soil but will accept the findings of natural scientists in this field. The researcher only included respondents from Ledumang ward because this location is the one housing the cemetery in use. The other three cemeteries are full and not in use. Religious questions were restricted to the Christian religion as Christians are a majority in the population. The study also did not enter into theological discussions about the resurrection of the body.

1.13 Limitations

Due to the COVID-19 pandemic, it was challenging to reach people as some of the targeted households did not want visitors in their homes. However, these were replaced by taking the next house number as house numbers were provided. It was also impossible to get to the Ministry of Environment because the Ministry of Health had suspended the issuing of research permits to researchers due to COVID-19. However, an environmentalist from a Non-Governmental Organization rescued the situation.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The previous chapter has given the introductory background to the study. The current chapter focuses on reviewing the current and relevant literature on death disposal practices and the negative effects of burial practices. It focuses on burial practices worldwide, negative effects of these practices and new trends in death disposal practices.

2.2 Varieties of death disposal practices and the negative effects of burial practices.

2.2.1 Burial practices worldwide

Death disposal, also known as final disposition, is the process of dealing with the physical remains of the dead person. It is the act of getting rid of the body before it starts decomposing and emitting foul odour that can affect the people around it. Several factors influence the duration of decomposition and these can be intrinsic and extrinsic. According to Rodrigues and Pacheco (2010), intrinsic factors are related to the body's age, sex, height, race, cause of death or, if carried out, an autopsy; extrinsic factors are related to the environment around the body like environmental temperature, precipitation, depth of burial, and soil oxygenation which can accelerate, retard or even stop the decomposition process. "In current environmental discourse, disposal does not remove and destroy waste but rather transforms it into something useful or harmful and/or re-locates it" (Rumble et al., 2014: 243).

Traditionally in Africa, including in Botswana, interment was the only known form of death disposal dating back from the Stone Age period. Guttman et al., (2012) attest that burial is a long-standing method of disposal which extends as far back as 44,000 years and it remains important for many cultures and religions such as the Catholic and Muslim. Studying burial societies in Botswana, Chris Brown (1982) claims that “the need for proper burial is eternal”. The idea of returning bodies to the earth, recycling them to the biota that supports life is the basis for burial in many cultures and religions (Stowelet al., 2000).[1] According to Auger (2000),[2] early Hebrews believed cremation was a disgrace to the body which is a creation of God and, as a result, used burial; Jewish people still hold such beliefs. Christians believe God created life as embodied life and the person is not simply a soul but a soul-body entity (Reville, 2018). This means that the body is to be respected and the corpse is not a worthless container vacated by the essence of life. Davies (2000) noted that funeral rites and burials provide a sense of meaning to communities and help them establish a sense of historical and cultural continuity over time. Interment is very important because, as the body decomposes, nutrients are added to the ground making it fertile and able to sustain other living organisms found within that area. Again, by burying bodies and often using large stones, it is possible to ensure scavengers do not exhume and eat your loved ones. Although death is a universal and important aspect of human existence which cuts across all cultures and religions, the treatment of the corpse and the way the dead are grieved and remembered is not universal (Yarwood et al., 2015). Similarly, Wilson and Chiveralls (n.d.) attest to the fact that burying and remembering the dead has the potential to connect people to their environment and community thereby creating a sense of connection to the ancestors. Body disposal can also take on great political significance both locally and internationally (Kearl, 1983; Kalusa, 2017).

[1] cited in Guttman et al. (2012).
[2] cited in Guttman et al. (2012),

Death disposal is a delicate subject because it involves beliefs and other cultural issues (da Cruz et al., 2017). Biwul (2014) similarly affirms that every human society and community have a way in which they dispose of the corpse which is different from others. Some are either cremated or buried according to some form of premeditated cultural tradition or some religious sociological ideologies (Biwul, 2014).Ancient Egyptians buried their pharaohs in pyramids, many of which are still standing; Hindus cremate their dead while Europeans bury them in cemeteries (da Cruz et al., 2017). The Victorian era in Britain saw the development of elaborate headstones and markers that revealed differences in class and wealth (Herman, 2010). In Islam and Jewish religions, burial preparations involve the washing of the corpse and dressing it in a shroud. If it happens that a container is used, it is usually a simple wooden coffin without any linings. The Islamic religion in particular promotes protection of vegetation in cemeteries, burial without a casket and without any use of pesticides on or around the grave (Uslu et al. 2009). On the other hand, Confucian beliefs in Asia place more emphasis on preserving the body. China in particular uses thick wooden coffins packed with clothing and a shroud in order to delay decay (Canning and Szmigin, 2010). Similarly, Christians in Europe and North America dress their corpses in normal clothing while traditional Catholics dress them in a shroud and put them in a coffin made of chipboard, wood or metal (Canning and Szmigin, 2010). In some cases, Catholics use embalming in order to slow the rate of decay before internment.

According to Ekore and Laure-Abass (2016), traditional African belief systems are based on an understanding that those who are dead are alive in a different world and can return to this world in new births. Africans believe that those in the world of the dead possess supernatural powers over those who are alive such that they have the ability to bless or curse and to give or take life.

As such, it is the desire of every individual to become an ancestor after death but it is believed that this cannot be achieved if an individual did not live a good life. In addition to living a good life, one should also receive a befitting burial to be an ancestor. Otherwise, the individual may become a wandering ghost, unable to live properly after death, and thereby constituting a danger to those who are still alive (Evans-Pritchard, 1949; Encyclopedia of death and dying).

Hence, although it might be thought that all peoples bury their dead in a similar manner, the kind of rituals performed on the dead and the whole disposal process differs from one culture, region and even religion to another. Of late, other practices of death disposal have already emerged in Africa, and Botswana is not an exception.

2.2.2 Negative impacts of burial practices

People rarely think about how the burial of corpses in death affects the land or the world at large. They take it for granted that the disposal of the dead body is sacred and hence can never have negative effects. However, according to Guttman et al., (2012), burial as a long-standing method of disposal has many associated pollutants because decomposition releases large quantities of nutrients such as nitrogen and chemicals like mercury that can negatively affect the environment and cause human health problems such as cancer. According to Bachelor (2004), groundwater pollution from graveyards and sewers were found to be the primary cause of the first major London epidemic of cholera in the early 1800s, and the English General Board of Health listed cemeteries as one of the causes of cholera in their 1850 report.

2.2.2.1 Spreading toxins

According to Harker (2012), digging in a modern cemetery in the United States is much like digging through a toxic waste. This is due to the fact that modern disposal practices entail the use of significant amounts of waste products, some of which are poisonous and harmful to people, animals and the environment at large. One such practice is the embalming process which requires formaldehyde to be pumped into the dead body in order to slow the decaying process and preserve the body for viewing during the funeral. Other components of the fluid may include surfactants to improve replacement of the original body fluid, antioxidants, buffers, and pinkish dyes such as eosin or erythrosine (Mayer, 2000).[3] The purpose is to improve the appearance of the dead by filling out the face and tissues and giving a more life-like colour to the skin. According Tom Auger 2000,[4]ancient Egyptians embalmed the bodies before burial because they believed that after death, the soul returned to inhabit the body. For this reason, they used embalming to delay decay for life after death. Embalming became a dominant practice in US funeral rites during the American Civil War of the nineteenth century when Abraham Lincoln introduced the requirement in order to preserve the bodies to allow transportation of the Union dead to their homes in the North (Canning and Szmigin, 2010). This is a common practice now in Botswana where, as in many other countries, there is viewing of the corpse.

According to Holness and Nethercott (1989),[5] the funeral industry in the United States of America requires approximately 827,060 gallons of embalming fluid, primarily formaldehyde, per year. After these chemicals are released into the environment, they make their way up the food chain all the way to humans. These fluids have been linked to a high incidence of

[3] Cited in Hart and Casper, 2004.
[4] cited in Guttman et al., 2012).
[5] Cited in Wilson and Chiveralls, n.d.

leukaemia, brain and colon cancer among the embalmers and to contamination of the soil which has difficulty in containing it (Holness and Nethercott, 1989).

Allemann et al., (2018) carried out a laboratory study of the leaching potential of formaldehyde through different soils and environmental conditions. Formaldehyde is a recognized carcinogen which is primarily toxic after inhalation through skin contact or ingestion, and it is believed to break down into innocuous compounds. However, this occurrence has never been established at sites such as cemeteries where there is a continuous addition of formaldehyde to preserve bodies (Allemann et al., 2018). Furthermore, it is also not clear to what extent the leaching of formaldehyde into ground water resources affects different soil types and environmental conditions. In order to determine this, the researchers in this study filled and buried twenty-seven containers with taps with either sandy, silty or clay soils together with samples of burial materials and a cloth saturated with formalin. All these were exposed to different temperatures, heavy or prolonged rainfall and the use of either acidic or slightly acid water. Leachate samples were collected every two weeks for a period of twenty-four weeks and analysed for formaldehyde using acid titration. The study showed that most formaldehyde percolated through the soil from between six to fourteen weeks of interment with a greater amount being leached from sand. The study further revealed that the amount of formaldehyde that leached was not affected by temperature or by soil pH but that conditions simulating heavy rainfall facilitated leaching.

Another toxin was found in the caskets used for burial. According to Harker (2012:151), "conventional burials in the U.S. use nearly 30 million board feet of hardwood, 2.700 tons of copper and bronze, 104.272 tons of steel, and 1,636,000 tons of reinforced concrete". These pollutants are not limited to the area in which they are buried. This was confirmed by Spongberg and Becks (2000) in their study where soil samples taken at coffin depth revealed elevated concentrations of metals used in casket construction, including copper, lead, zinc and iron.

Figure 2.1: Casket made of hardwood, steel, copper and bronze

Source: Kremer-BBC World Hacks

2.2.2.2 The shortage of land

There is a looming problem in many parts of the world over what to do with dead bodies as pressure on burial space intensifies. People continue to die, causing cemeteries to fill rapidly and we are running out of places to put cemeteries. The industrial revolution in the 18th and 19th centuries saw a mass migration from small villages and towns to cities which created a serious shortage of land in the cities. This is also the case in Botswana where most people move from rural areas to urban areas in search of job opportunities. When these people die, they are not taken back to the village for burial, but instead they are buried in towns where they have been residing. According to Alnsour (2016), many cities in developing countries have the goal of improving the quality of life of the population through efficient urban services focused on infrastructure thus creating a challenge because urban growth is very fast and constant. Urban populations make use of the variety of services found within the city to meet their needs and the disposition of dead bodies in cemeteries is one of them. It is true that urban growth has steadily advanced on cemetery areas as a result of population growth and this is evident in the increase in the number of houses in areas not previously occupied (Neckel et al, 2017). While it is a good thing to honour the dead with space of their own, it is probably not sustainable to continue allowing everyone to have their own plot of land.

The problem with disposing bodies in cemeteries is that nothing can be done with the land once bodies are under the ground as the land can never be able to support other activities. All life forms are dependent on land, and land is a valuable resource for human beings especially those who use it for farming, industrial, residential and leisure activities. The rapid population growth experienced in the world means that the capacity for burial is also constrained. The tension in using land to sustain various human activities is also apparent in China where haphazard placing of tombs takes up large areas of cultivable land.[6] This has contributed to the promotion of the practice of cremation from the 1950s onwards and the levelling of more than 100 million tombs located on arable land and along railroads allowing 6.7 million hectares of cultivable land to be reclaimed. Again, the need to dispose of the dead creates employment for funeral directors, grave diggers and gardeners to maintain the cemetery grounds and has also given rise to the development of thriving funeral industries (Wilson and Chiveralls, n.d.).

2.2. 2.3 Excess use of water in cemeteries

Nowadays memorial parks and lawn cemeteries are very common, especially in urban areas. However, they are characterised by the excessive use of water which is a problem in areas that

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[6]Cited in Canning and Szmigin, 2010.

receive less rainfall as is the case in Botswana which is a semi-arid country with scarce and erratic rainfall and no reliable rivers and is “the second driest country in sub-Saharan after Namibia” (CSO, 2014: 430). According to Wilson and Chiveralls (n.d.), these cemeteries tend to be much greener than traditional burial areas and, rather than presenting a gloomy vista of ranks of tombstones, they are characterised by manicured gardens and lawns. However, these require significant volumes of water to maintain the beautiful gardens that surround the burial plots. Again, the lawns and gardens are regularly covered with chemical fertilizers to keep them green thereby adding toxins to the surrounding soil and also affecting the health of those tending them and harming wildlife such as bees.

2.2. 2.4 Deforestation

Deforestation is the act of cutting trees and removing forests to use for other purposes, such as for religious purposes, shelter, traditional medicines, dyes, oils, intoxicants, beverages, fuels, fibre and tools. Forests and trees in general are important for the wellbeing of humanity and the country’s development. According to Food and Agriculture Organisation (FAO) report of 2000, forests provide foundations for life on earth through ecological functions by regulating the climate and water resources and also by serving as habitats for plants and animals. They also possess the potential of generating income resources for individuals and countries through commercial logging. Timber obtained from forests is normally exported or used in the construction industry to generate valuable revenue especially in developing countries. The FAO’s State of the World Forests 2009 report reveals that the forest industry accounted for US$324 million in Cameroon, US$3,545 million in South Africa, US$41,208 million in China, US$28,206 million in Brazil and US$108,428 million in the United States.

According to the Sida-EEU (2008) report, fuel wood from forests and woodland accounts for 70% of net energy supply in Botswana, and high reliance of wood for fuel has resulted in significant depletion around towns and major settlements. As the human population continues to grow, the planet is exposed to more and more risks. According to FAO (2020), it is estimated that 420 million hectares of forest has been lost to deforestation since 1990. Burials greatly harm the environment as in some of the above mentioned human activities. According to Mathews (2015), the amount of wood needed to create caskets in the U.S. is equivalent to four million square acres of forest which contains enough trees to confiscate 65 million tons of carbon dioxide a year. It is believed that ten acres of cemetery contain enough coffin wood to build 40 houses (Reville, 2018).

2.3 New Trends in death disposal practices

Urbanization in African countries is increasing more than on any other place in the world (Obeng-Odoom, 2012) and Botswana is not an exception as more people move from the rural to the urban areas (Nkambwe and Totolo, 2005) in search of job opportunities. This has increased the urban population and thereby increasing the demand for social amenities. According to Nkwae (2006), in South-eastern part of Africa, where Botswana is located, urban centres were planned for a small population and the urbanization makes them ineffective when it comes to supplying serviced land for housing purposes. Gaborone, the capital city of Botswana was initially planned for a small population but has seen an exponential growth in human population and settlements over the last 50 years. This is most likely because the city has a more developed infrastructure, making it more liveable. This has resulted in residential areas and cemeteries being placed close together.

Globally, traditional funerals are on their death bed as people are now opting for funerals that are easier on the planet and the budget. Many cemeteries especially in urban areas are running out of space because of the rapid rural to urban migration. As human practices can have a long-lasting effect on the environment, it is very important to limit these activities as much as we can before it is too late. One way of lessening the impact on the environment is by choosing an environment-friendly method of disposing of dead bodies. Even if one chooses a burial style funeral method which is the norm in Botswana at present, there are still steps that can be taken to reduce the harmful effects on the environment. The following are some of the alternative methods found in the literature.

2.3.1 Cremation

Some people have chosen cremation in place of the more traditional burial type funerals in Africa which put a lot of strain on the environment. Cremation, in fact, is the traditional method of disposing of dead bodies in countries influenced by Hindu, Sikh and Buddhist religions (Canning and Szmigin, 2010). Over 99% of bodies are cremated in Japan due to high population density (Bassett, 2010). Cremation has recently begun to gain popularity in many countries because it is understood to be cheaper than traditional burial because there is no need for a casket, headstone, transportation fees for the casket, etc. Again, the process of cremation is much simpler than a traditional burial funeral. It requires fewer decisions to be made as compared to a burial funeral where there is need to plan for such logistics as transportation of the body, arranging mortician services and transportation of the casket. Cremation is currently becoming more common in Brazil due to lack of space in public cemeteries and as an alternative approach for reducing contamination of the environment (Decker Junior et al., 2018).

Cremation rates in North America have risen from 3.56% in 1960 to 36.86% in 2009 and it is projected that they will rise to 43.6% by 2025 (Cremation Association of North America, 2003). According to Wilson and Chiveralls (n.d.), cremation was not available in Australia until the twentieth century with the first crematoria opening in Adelaide in 1903. During that time, it was seen as so modern and shocking an alternative to traditional burial that few people were likely to accept. Today, however, more than three quarters of all burials in Australia are cremations (ACA, 2013). This rise in the popularity of cremation has been strongly associated with the need for discourses around public health, and it was seen to be offering a cleaner alternative to traditional burials. This was so because the cleanliness of fire and ashes was seen to offer an aesthetic end to life and deliver minimal putrified remains that would avoid contaminating the living (Prothero, 2001). Decker Junior et al. (2018) agree with Prothero that "cremation is an important mechanism in the elimination of viruses, germs and bacteria, helping to improve sanitary conditions for mankind". They assert that the procedure involved in cremation reduces the body to dust through intensive heat and evaporation resulting in decomposition, as the body is composed of 75% liquid and 25% solid. The liquid part then evaporates and becomes gas thus leaving the dust rising from the solid portion (Decker Junior et al., 2018).

However, despite the fact that cremation may be more eco-friendly than burial, it also has negative effects. The burial of remains in ceremonial containers and the construction of memorial sites that can be visited by the bereaved present problems similar to interment with reference to land requirements and the natural costs incurred in burial (Canning and Szmigin, 2010). Cremation also uses large amounts of non-renewable energy resources to maintain body burning furnaces at a temperature of 800-1000 degrees Celsius which results in an increasing amount of greenhouse gases in the atmosphere (Wilson and Chiveralls, n.d). The process of cremation releases carbon monoxide, fine soot, sulphur dioxide and heavy metals into the atmosphere (Harker, 2012) in addition to mercury which is a known poison (Barthuly, 2019). In contrast to a natural burial, in which a body is simply left to decompose in nature, cremated ashes are sterile and do not supply nutrients back into the earth. Whereas the earth relies on a simple nutrient cycle, in cremation, humans are not returning to dust anymore in the sense of going back to mother earth.

The energy cycle functions as follows: it starts with the sun; plants absorb its energy and flourish; herbivores then eat the plants; When a herbivore is eaten by a carnivore or omnivore, its energy and resulting nutrients move up the food chain until this reaches the top of the food chain. Humans are part of this food chain, and when human beings die, they are buried in the earth and their nutrients go back into the soil. This procedure allows plants to flourish and grow and the cycle starts all over again. This is why natural burial should not allow for cutting of trees in cemeteries. Cremation, on the other hand, prevents the natural process from continuing.

Disposal by cremation also raises some cultural and religious issues concerning the relationship of the body and soul, and it is here that major confrontations between culture and environmental concerns are evident (Canning and Szmigin, 2010). For example, the demand by some Hindus in Britain for cremation using open-air pyres in order for the soul to be liberated from the body has created a legal dilemma with regard to human rights, on the one hand, and potentially unpleasant and harmful emissions to be suffered by those living close by, on the other (Canning and Szmigin, 2010).

2.3.2 Green burial

A new trend that has emerged in burial practices is sometimes referred to as green or woodland burial. A green funeral has been described as generally any end-of-life ritual that is as harmless as possible for the environment, thereby reducing its environmental impact.[7] Many people view green burial as the traditional way of being buried and a return to the way people were buried before the industrialization and commercialization of funerals. According to Wilson and Chiveralls (n.d.), natural burial requires the interment of the body in the soil in a manner that does not inhibit decomposition and hence allows the body to recycle naturally. Green burial may take place in a conventional modern cemetery, in a green cemetery or a natural burial ground that uses eco-friendly methods. In these sites, traditional headstones are not allowed, embalming and hardwood caskets are shunned, and the priority is to create and preserve new habitats (Hockey et al., 2012). Graves are marked with markers native to the landscape such as trees (see Figure 2.2), shrubs or flat stones. Irrigation, pesticides and herbicides are not used to maintain the site (Uslu et al., 2009). According to Ucisik and Rushbrook (1998), trees and shrubs have benefits beyond marking sites as they increase evapotranspiration, reducing water filtration and movement of pollutants and can uptake decompositional products. The first natural burial ground in the US was set up in 1993 within Carlisle municipal cemetery (Hockey, et al., 2012). Graves in a green burial are normally dug by hand and concrete vaults or grave liners are not used. This is understood to be a method for reducing pollution created by conventional burial methods and cremation.

Green burial involves the use of fewer resources by not using the casket and wrapping the body in a biodegradable shroud which is then laid to the ground. The intention is to reduce the amount

[7] "Choices: Information on the regulations and requirements of the final disposition of a dead human body in Minnesota", 2011.

of wood, metal and chemicals used in the burial procedure, diminish pollution and protect native species (Uslu et al., 2009). Green caskets are easily biodegradable and do not add toxins to the earth as they decompose because they do not have chemical-based paints or finishes on them. On the other hand, commercially produced caskets can take a long time to breakdown in the soil because they contain metal parts like handles and hinges.

Moreover, green burial is also a very costly alternative to conventional burials. In this type of burial, bodies and ashes are buried in the ground and are intended to become woodland (Rumble et al., 2014). These remains nourish nature and become part of the natural world that in turn sustains living forms found in that place. Davies and Rumble (2012) aver that at this stage, the corpse is no longer a toxic to be disposed of but is rather a fertile body that is to be dispersed back into the soil to foster new life from its very decomposition.[8] In other words, the natural burial procedure returns the dead to the living through the act of giving back and fertilizing the soil thereby benefitting the living. Rumble et al. (2014:247) write that "natural burial challenges the life/death boundary by bringing the dead into the realm of the living in 'naturalized' burial grounds where the living may relax, take picnics, walk dogs and so on in 'natural' surroundings that, unlike traditional cemeteries, are not visibly a place specifically of and for the dead". The main aim of natural burial is to create a space that looks like a woodland full of local flora and fauna and not like a burial space thereby offering food and refuge to birds and other wildlife (see Figure 2.2).

[8]Cited in Rumble et al., 2014.

Figure 2.2 Trees acting as grave markers in a natural burial site

However, although natural burial is being heralded as the future disposal choice, it does not address long-term land capacity constraints, unless plots can be reused (Canning and Szmigin, 2010).

2.3.3 Aquamation

Yet another body disposal alternative to internment and cremation is aquamation. It is also known by various names including alkaline hydrolysis, liquid cremation, resomation, flameless cremation and bio-cremation. Aquamation is a relatively new burial practice which is used in USA, Britain, Canada, and South Africa. Although patented in 1888, alkaline hydrolysis was only first used for body disposal in 2003 in the USA and was only introduced in South Africa in 2020 (Slabbert and Labuschaigne 2021). Aquamation was used recently in the disposal of the remains of Anglican archbishop and Nobel Peace Prize winner Desmond Tutu. The form of body disposal is part of a growing ‘green burial’ movement that avoids non-biodegradable materials and promotes natural decomposition. Advocates say it is an environmentally friendly alternative to lavish caskets and cremation by fire which emits greenhouse gases. The practice is similar to cremation but instead of using fire, it uses water and alkali-based methods to break the body down chemically (Canning and Szmigin, 2010). The practice was originally marketed to rapidly decompose animal bodies and use their nutrients for fertilizers (Atkin, 2018). It was later adopted by scientific labs to dispose of disease-contaminated bodies like cow carcasses infected by mad cow disease in the 1990's (Atkin, 2018). According to Wilson and Chiveralls (n.d.), this process reduces the body to a green-brown liquid which is sent to a water treatment plant for disposal. The white bone remains are crushed to form a white-coloured dust which is placed in an urn, as is the case with cremation, and returned to the next of kin of the deceased for final disposition. Dental mercury is then removed from the ash as it cannot be dissolved or burnt by the process.

One thing good about aquamation is that unlike traditional cremation, there are no toxic emissions and there is no contribution to greenhouse gases as it uses less electricity and gas (Slabbert and Labuschaigne 2021). According to da Cruz et al. (2017), 16% of the mercury that goes into the atmosphere in Great Britain is due to cremations. However, although environmental issues could arise if the water poured down the drain after a liquid cremation has a pH level above local regulations, funeral homes can easily treat the water with carbon dioxide before releasing it (Atkin, 2018). In other words, it is an environmentally friendly process and cost-effective means of disposing of human remains.

2.3.4 Promessa

Another method of green disposal is the process of promession which is marketed as a form of cremation. Promessa is a form of burial in which the human remains are disposed of by freeze drying in order to provide reduction in the mercury emissions propagated during the cremation (da Cruz et al., 2017). Liquid nitrogen is used to freeze the body thereby making it brittle enough to be shattered by vibration. This reduces the body to powder which weighs 50 to 70 percent less than the original body weight (Wilson and Chiveralls, n.d.). The dry powder is then placed in a biodegradable casket and buried in the soil where bacteria decompose the remains into humus ready to be used by the soil (Wilson and Chiveralls, n.d.). The process does not emit any harmful toxins or have environmental effects (Bouverette, 2007).

2.4Zandfontein cemetery in South Africa

Jonker and Olivier (2012) carried out a study in the city of Tshwane in the province of Gauteng, South Africa. The city of Tshwane Metropolitan area (i.e., Pretoria) has a total of forty cemeteries and one crematorium within the municipal boundary. The Zandfontein cemetery, which is the focus of the study, is one of the oldest cemeteries in Pretoria which is still in operation.

The main aim of the study was to find out whether the mineral contents of soils in a cemetery are affected by burial practices and thus by anthropogenic activities. In other words, they wanted to find out whether burial load affected the mineral composition of the cemetery soils, thereby causing a potential health risk. They compared the mineral contents of soils within the cemetery with those off-site, and the soil mineral contents of densely populated areas of the cemetery with those in areas with fewer burials.

The results showed that the mineral composition of soils within Zandfontein cemetery was significantly higher than those off-site, and that the soils in the zones with the highest burial loads were more contaminated than those in the less used parts of the cemetery. According to the study, the burial loads have a direct impact on soil-mineral content which means that cemeteries can be regarded as anthropogenic sources of contamination. Their study did not include the pathogenic or organic releases from grave sites due to burials but rather relied on estimates of the amount of metals that are already introduced into the Zandfontein cemetery.

2.5 Zimbabwe

As in other countries, Zimbabwe is also experiencing a shortage of cemetery land in the major cities. According to Shoko (2008), the traditional custom for many Zimbabwean families dictates that they bury their loved ones on family homesteads, sometimes far from the cities where the deceased lived. Many believe that they must bring the deceased's spirit home so it can watch over the remaining family on earth. The Shona believe that the deceased has to return for burial to the place he or she was born and where the umbilical cord lies (ibid.). However, inflation and rising fuel costs have put this out of reach for many, forcing them to use urban cemeteries instead. This has fuelled the demand for city gravesites resulting in a shortage of burial space.

According to Moyo (2020), Bulawayo, Zimbabwe's second largest city, is running out of burial space. The city has about 332 acres of land reserved for burial space, but officials do not know how many bodies already occupy that space. Burials have placed demand on city-owned land which the government also needs for building houses. Phiri (2019) revealed that, according to the local authority, the city has a housing waiting list of about 115,000 applicants and a target to provide homes for 3,000 people every year. However, meeting the housing targets has proven difficult across the country as people continue to migrate into cities from rural areas. In addition, the Bulawayo City Council has responded by encouraging residents to consider cremation, double interment for married couples or reusing old graves. However, the encouragement of cremation has run up against stumbling blocks as the practice is unpopular among most Africans and cannot allow traditional rituals to be carried out when the body has been burnt to ashes. Families are also not ready to bury loved ones in other people's graves because they believe peoples' spirits linger in their graves.

2.6 Zambia

With reference to Lusaka, the capital city of Zambia, the editorial opinion in the *Times of Zambia* for the 12th May, 2021 stated that according to the World Data Atlas, there were 35,000 deaths recorded in Lusaka in 2020. It noted that "the lack of land for burying the dead has posed a serious bottleneck for the local authority and has led to the council being forced to look outside the city for alternatives." It continued: 'The desire for more burial space always brings up debates on whether cremation is a simpler alternative to burying the dead, especially with the fast growing population." It finally noted very significantly: "while there are many religious and cultural views that the public have on the matter, it is definitely not misplaced for further exploration and debate as a potential game-changer in disposing of bodies.''

2.7Ledumang ward

There is virtually no literature available on death disposal practices in modern Botswana. However, accounts exist of burial and mortuary rituals and practices in traditional society (Brown, 1982). The cemetery in Ledumang is one of four cemeteries within Gaborone and the only one that is in use at present as the other three are already full. In view of the increasing problem of lack of space for burials, and in view of the threat posed by the use of formaldehyde in burial practices in the context of heavy rainfall in particular, and considering the fact that burials take place on a weekly basis in operational cemeteries in Botswana, it is possible that a shift may be taking place in the thinking of Batswana in terms of the need for alternative methods of disposal of corpses. Such a shift is most likely to pose a tension between religious forms of thinking with respect to the human body in death, on the one hand, and advances in scientific knowledge on environmental issues, on the other.

This study will fill a gap in the literature on the issue of the disposal of dead bodies in Botswana in particular by finding out in what ways and to what extent Batswana thinking on this issue may be going through a process of change.

CHAPTER THREE: THEORETICAL FRAMEWORK

3.1 Introduction

This chapter discusses the land ethic explaining Leopold's understanding of "land" and his definition of environmental ethics.

3.2 The Land Ethic

The land ethic was founded by Aldo Leopold, an American forest ranger and conservationist in the 1940s. He was living in a forest reserve and was very keen on preserving nature. He is regarded as the father of environmental ethics and *The Sand County Almanac* in which he propounded the land ethic which is often called "the bible of the contemporary environmental movement" (Zimmerman, 2005). In similar language, Dale Jamieson, a leading philosopher in environmental ethics identifies Leopold as one of "the heroes of the contemporary environmental movement" (Jamieson, 2008: 22). Leopold therefore embarked upon establishing a theory that created obligations for humans towards land.

The land ethic was chosen for this study because it deals with all elements of the ecosystem which includes humans, soils, plants and animals. It encourages human beings to preserve the beauty, integrity and stability of the natural environment by not disturbing it. The current body disposal is a form of interference with the ecosystem and would like to check how this relates to the beauty, integrity and stability of the land in question and whether this is the best with regards to those 3 aspects. Below, I will present the salient elements of his theory which will be used in Chapter 6 to evaluate ethically the beliefs, attitudes, and practices of Batswana focusing on the Ledumang community.

The major ethical perspectives, utilitarianism and Kantian ethics, have been anthropocentric in focus and philosophers have tended to interpret and apply them anthropocentrically. Gabriel Garmendia da Trinidade and Andrew Woodhall (2016) argue that anthropocentrism has been given different meanings by different authors. According to them, anthropocentrism has a perspective and a valuational element. The perspective element takes human experiences, norms, values, and thoughts as the default and standard measure while being dismissive of nonhuman perspectives. On the other hand, the valuational dimension gives human animals all, or at least greater moral value than any other animals. In environmental ethics, it is the valuational dimension that is key and it is summed up by Baird Callicott that "only humans are worthy of ethical consideration" while "other things are mere means to human ends".[9] Anthropocentrism has been prevalent in both ethics and conservation. Aldo Leopold was an early pioneer to remedy this problem in both ecology and ethics. Since the publication of his land ethic, moral philosophy has become less anthropocentric and ecological justice has continued to flourish (Wienhues 2020).

By mid-twentieth, Leopold explicitly called for the natural environment to be respected and be made a subject for moral consideration for its own sake and not for the sake of human beings. He bemoaned that "there is as yet no ethic dealing with man's relation to land, and to the animals and plants which grow upon it. Land …is still property. The land-relation is still strictly economic, entailing privileges but not obligations" (Leopold, 1949: 203).

Leopold's critique of the anthropocentric conservation ethic resulted in the proposal for an ecocentric worldview. According to Wienhues (2020: 7), ecocentrism designates a range of

[9] cited in Kopnina et al., 2018: 115.

views that hold “all living beings, ecosystems, species or the Earth itself as holders of moral status/intrinsic value.” Ecocentrism thus acknowledges intrinsic value for more things in nature than only humans but also for sentient beings that include non-human animals and other life forms (biota).

The core features of anthropocentrism include human chauvinism and speciesism (Kopnina, 2018). This means that humans regard themselves more special than the rest of creation and more special than members of other animal species. Leopold identified a narrower focus on economic value for humans whereby humans valued nature only if it provided some economic value. The commodification of nature reduced the value of nature to its worth in dollar price (Smith, 1998: 12). “Land-use ethics”, wrote Leopold (1949: 209), “are still governed wholly by economic self-interest”. This denial of any intrinsic value to nature apart from its instrumental value to humans put nature in danger of destruction. Those aspects of nature deemed to be economically expendable would not be protected or would be destroyed to replace them with things which were deemed to be more profitable economically. Although anthropocentrism “can produce environmentally-positive outcomes in situations where both humans and the environment are negatively affected, [it] does not protect nonhumans without utilitarian value” (Kopnina et al., 2018: 118). The human self-centred approach towards the environment “tends to ignore, and thus eventually to eliminate, many elements of the land community that lack commercial value” (Leopold, 1949: 214).

Leopold’s land ethic differs in another respect from the prevailing ethical mind-set during his time and which is still quite dominant today, namely, individualism. Mainstream ethical theories like utilitarianism are individualistic. The individual is the unit of value. Against this individualism, Leopold’s ethical perspective for protecting the environment is holistic. Holism acknowledges value for the whole or collective such as a species or ecosystem or the entire earth rather than, or in addition to, the value of individuals who make up the whole. The land ethic "implies respect for his fellow-members, and also respect for the community as such" (ibid.). Humans, therefore, must extend their respect not only to fellow humans but also to fellow creatures and to the land (nature) itself. It is not only individual members of the land or earth community that matter but the community as a whole.

Being holistic, Leopold's theory stresses the notion of community and gives it moral status separate from that of the creatures who make up the community. All ethics rest upon the premise of a community of interdependent parts. He sought to extend "the boundaries of the community to include soils, waters, plants, and animals, or collectively: land". For him, then, "land" included all living organisms that interacted with one another and with their inorganic surroundings (Wenz, 2001).

According to the land ethic, human beings are members of the ecosystem and are not outside of it. As such, they are interdependent with other members of the ecosystem. This means that all things are connected to one another and human beings need to realize that other members are as important and valuable in their own way as are human beings (Mungwa, 2017). In Leopold's words, "a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it" (Leopold, 1949: 204). By saying humans are plain members of the land community, Leopold discarded the hierarchy that characterised anthropocentrism and mainstream moral theory. Therefore, decisions about land use should not necessarily give priority to human interests alone but rather to the interests of the wider community. According to Millstein (2018: 393), the idea of community has a moral connotation as it “nicely conveys the idea of an entity that we are part of and connected to – and thus have moral obligation to.”

Furthermore, according to Leopold (1949: 216), land “is not merely soil; it is a fountain of energy flowing through a circuit of soils, plants and animals"; it is like a fountain flow that energizes everything from its source. Leopold used the image of a biotic pyramid community in which members are interdependent on one another for the good of the whole through the energy transferred upwards and downwards. Lower life forms, then, contribute to the wellbeing of higher life forms. This is referred to as the food chain. Different layers are found within the biotic pyramid starting with the soil which is found at the bottom followed by the plant layer which rests on the soil, an insect layer which rests on the plant, a bird and rodent layer which rest on the insects, and so on up through various animal groups to the higher layer which consists of the larger carnivores. Human beings, who are at the top of the pyramid, are dependent on the soil to sustain plants that support them with food, medicines and shelter. However, once all organisms die, whether plants or animals, they return to the soil where their energy is retained and recycled again upwards in the biotic pyramid. The biotic community, therefore, is a system of shared relationships and it comes with obligations for humans.

The land ethic thus acts as a guide as to how human beings should relate to the environment. Humans are encouraged to acknowledge their place in, as opposed to their conquest, control and use of, the natural environment. They should be responsible in the way they behave towards the ecosystem because they are intelligent moral beings. Hence, each and every member of the biotic community is entitled to moral consideration and has moral worth. As such, all should be given moral status and respect in proportion to each one's individual nature. Leopold thus encourages us to develop "an ecological conscience" with respect to the natural environment.

He noted that there is need to extend "the social conscience from people to land" (ibid: 209) and exclaimed: "It is inconceivable to me that an ethical relation to land can exist without love, respect and admiration for land, and a high regard for its value." (ibid: 223)

Leopold (1949: 224-5) gave expression to what was the first formulation of an environmental ethic in the following maxim: "A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise". According to the *Oxford English Dictionary*, integrity means "the condition of being whole and undivided." Integrity connotes the idea of intactness, maintaining originality and remaining uncorrupted by external influences. For Warren (2016: 340), integrity "had to do with parts of nature that were necessary for land to keep its stability and its health…. [It] meant that species needed to keep land stable, and it meant the full range of self-organized native plants and animals that had inhabited the place before industrial civilisation arrived". Integrity thus entailed "maintaining all the original species in the community and not exchanging them with new ones" (Simberloff, 2012: 504). It therefore meant that native species of plants and animals should be left to thrive in their natural habitats as a matter of biotic right.

Although stability can mean something static and unchanging, Leopold understood that as ecosystems naturally undergo gradual and mild changes, members of the ecological community should adapt to those changes without unduly disturbing the natural environment. Therefore, according to Millstein (2018:394), "rather than referring to an unchanging system, stability should be seen in terms of sustainability and resilience of the natural environment to external forces". Leopold was referring to the threat of human-induced instability to the health of the land rather than to natural changes which even contribute to land health. Stability thus refers to 'land health', a term that by the early 1940s had become the "centrepiece" or "cornerstone" of

Leopold's thinking about the conservation of nature (Simberloff, 2012; Warren, 2016). The concept of land health referred to "the ability of the land to cycle nutrients efficiently and continuously over long periods of time, via long and diverse food chains, so that land continues to sustain life over time and is capable of self-renewal" (Millstein, 2018: 394). Leopold therefore objected to an attitude to land which saw it as a commodity for human exploitation that resulted in instability of the health of the land.

For Leopold, what was natural was beautiful. He had a negative view of the introduction of non-native plants and animals into the ecosystem. Simberloff (2012) noted that just as you cannot beautify the Mona Lisa by adding a necklace, you cannot beautify nature through artificial measures. Beauty, for Leopold, was thus not something merely subjective in the eye of the beholder; it was rather "an objective ecological attribute that could endure. It was "a characteristic that arose when the parts of nature were linked harmoniously into a whole promoting land's stability and long-term flourishing" (Warren, 2016: 343). This was not to deny the beauty that can be created by humans in an artificial way but rather that such beauty should not be at the expense of the deeper beauty of the natural environment. Therefore, maintaining the beauty of a place referred to conserving as much as possible the interconnections of the ecosystem that had been arrived at naturally. The land ethic has been used recently to evaluate land-use and conservation practices such as the Yolo River bypass project in the US (Millstein, 2016) and the introduction of non-native species in ecosystems (Simberloff, 2012).

It would be a mistake to interpret Leopold's use of the concepts of integrity, stability and beauty as distinct or separate from one another. He is focusing on one reality, namely, the ecosystem which is a holistic reality. These three concepts are interlinked and interconnected with each other although they can be discussed separately. It is no wonder that Holmes Rolston III can speak of ecosystemic value as distinct from inherent, intrinsic or utilitarian value that can be associated with individual entities.[10]Ecosystemic value focuses on the value of the ecosystem as a whole. Hence, the integrity, stability and beauty of the ecosystem are all focusing on the one reality. Just as mathematicians can speak of the beauty of an equation that brings things together or just as a scientist like Einstein can speak of the beauty of the universe in terms of order and harmony, so Leopold can speak of the beauty of the ecosystem. Beauty is usually thought of in a more popular way as referring to something that gives one pleasure to look at, something that is observable. However, there is a deeper form of beauty that is not popularly observable but that can be known on a more scientific level. Even what can seem to be chaotic events in the short term turn out to be orderly on a higher emergent level at a later stage in natural evolution. This is the kind of hidden beauty that Leopold is so much aware of when he speaks of the harmony, order and interconnectedness that has arisen over long periods of time in the emergence of ecosystems. For this reason, he was strongly against the utilitarian use of land for commercial reasons.

It is important to note that just before giving his definition of environmental ethics, Leopold says: "Examine each question in terms of what is ethically and aesthetically right as well as what is economically expedient." In other words, he is saying that caring for the health of the natural environment should not be based on decisions that exclude care for human welfare. Economic expediency is also a factor that needs to be acknowledged. However, although it is

[10]Holmes Rolston III, "Value in nature and the nature of value" in *Environmental Ethics: the Big Questions*, Wiley-Blackwell, 2010.

inevitable that humans will interact with the environment through various land uses, they should do so with caution and gently to avoid abrupt changes that could endanger species of plants and animals and hence threaten the integrity of the whole.

CHAPTER FOUR: METHODOLOGY

4.1 Introduction

This chapter explains the design, methodology and methods that were used in the collection of data for the research.

4.2 Research design and case study

The research design is the researcher's overall plan for obtaining answers to the research questions guiding the study. Kombo and Tromp (2006: 70) see design as a "glue" that holds all the elements in a research project together. It is used to structure the research, to show how all of the important aspects of the research project work together to try to address the main research question. They further state: "A case study seeks to describe a unit in detail, in context and holistically" (Kombo and Tromp, 2006:72). According to Bryman (2004), a basic case study entails the detailed and analysis of a single case. It requires the collection of very varied data in order to produce a detailed understanding of the object being studied (Borg and Gall, 1977). The case study approach allows the researcher to analyse the issue at hand in detail thereby learning more about a poorly understood situation (Leedy and Ormrod, 1985).The research design in this study of Ledumang cemetery enabled an in-depth investigation into the beliefs, attitudes and practices of the residents of Ledumang ward regarding the disposal of bodies.

4.3 Methodology

This case study of Ledumang cemetery used qualitative methodology with an ethical component. The ethical component involved the application of the land ethic to guide and analyse the data.

4.4 Methods

The study involved the collection of data using primary and secondary sources. Primary data were collected through observations and in-depth interviews. In-depth interviews were conducted with 12 key informants, namely, the local chief, member of the VDC, an environmentalist, an official from Gaborone City Council planning department, an official from a funeral parlour, an official from the coffin manufacturing company, an official from the memorial park, 5 members of the clergy and 30 householders. The total of interviews was thus 42. Secondary sources were collected from relevant books and journal articles, the internet and the library at the University of Zambia.

4.5 Study location

The study was carried out in the South Eastern part of Botswana in Ledumang ward which is one of the locations within Gaborone city and contains a cemetery. Gaborone is the largest city in Botswana and also the capital. Botswana is a landlocked country bordered by South Africa to the south and south-east, Namibia to the west and north, and Zimbabwe to the north-east. More than 70% of the country is made up of the Kalahari Desert. The country's land surface area is estimated at 582,000 square kilometres with a population of approximately 2,438,882 million as of 15th June, 2022 and people having an average life expectancy rate of 58 years. According to CIA World Factbook (2011), the birth rate of the country is approximately 22 births per 1,000 and the death rate is 10 deaths per 1,000.

Botswana is divided into nine districts (Figure 4.1) and the South East district is where the study was undertaken and which houses Ledumang ward which is in Gaborone City. The city boundary occupies a land area of 19,096 ha and is bordered to the east by Notwane River which serves as a structuring element and natural boundary between the city and Tlokweng (Batlokwa Tribal Territory); to the west it is bordered immediately by Mogoditshane which is the largest peri-urban settlement with a population of 88,098 (Bakwena Tribal Territory); in the north the city abuts Kgatleng district (Bakgatla Tribal Territory) boundary; and immediately to the south, the city is bordered by freehold farms which fall within the jurisdiction of the South East District (Ministry of Lands and Housing). The population of Gaborone has as a consequence of the on-going urbanization in the last 60 years grown from 3,855 to 244,107 in 2022 (2022 Population and Housing Census)

Figure 4.1. Map showing Botswana Districts

Source: Maps of Botswana

From the above location and boundary contexts, Gaborone City is enclosed with no available land for future special expansionary needs of the city (Figure 4.2). As Gaborone is the capital city, it is the only place in Botswana with many cemeteries due to its large population.

Currently, there is a serious shortage of land and the city has nowhere to expand because it is surrounded by other villages which some people have now come to think are locations within the city. Ledumang cemetery is shown in Figure 4.3

4.6 Sampling techniques and sample size

Purposive and systematic sampling techniques were used for this study.

4.6.1 Purposive sampling

Purposive sampling was used to select key informants for in-depth interviews. Newby (2010) defines purposive sampling as a non-random sampling which has a specific purpose aligned to the goals of the investigation. It allows the researcher to deliberately choose people that he/she believes are more informed regarding the study.

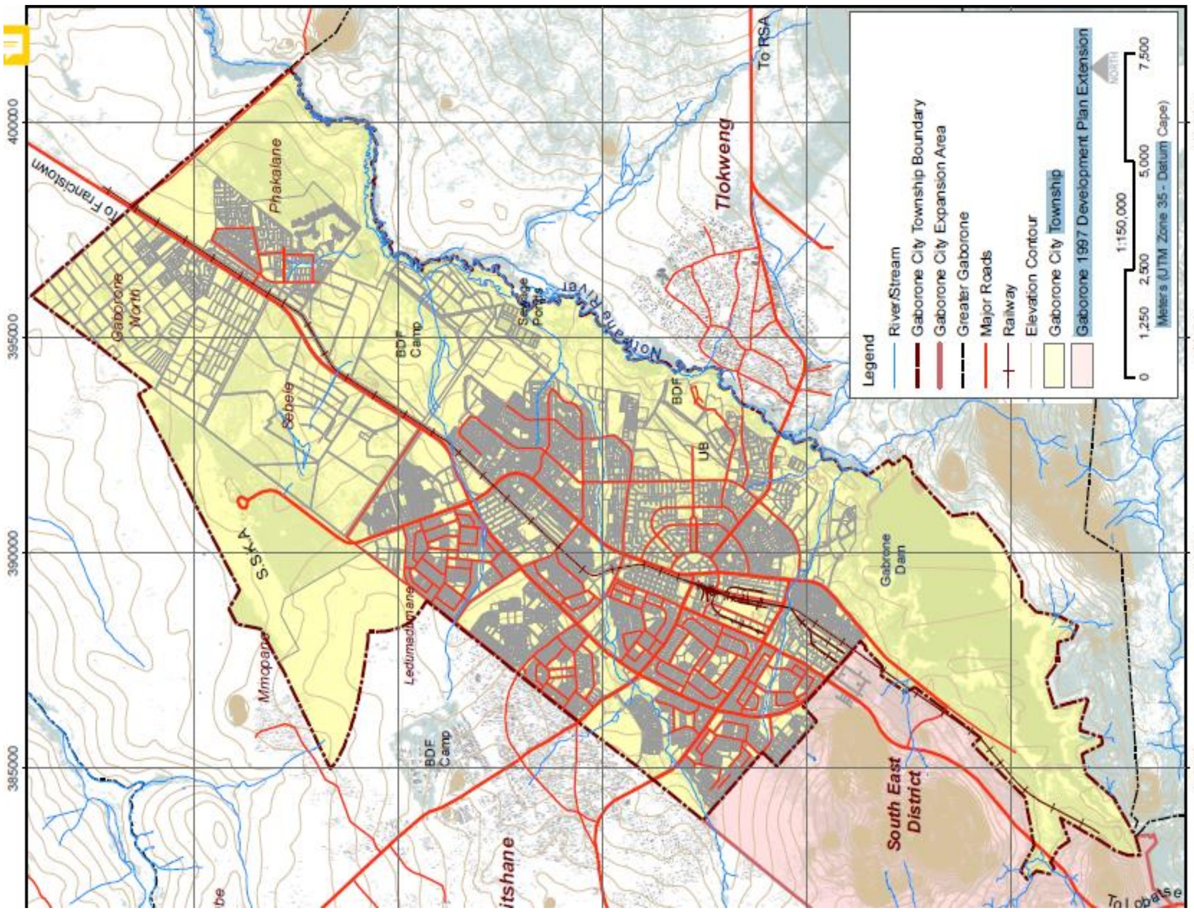

Figure 4.2: Map of Gaborone City Council

Source: Gaborone City Council Brochure

According to Kombo and Tromp (2006:82), “the power of purposive sampling lies in selecting of information rich cases for in-depth analysis related to the central issues being studied”. It targets sources that are rich in information concerning a particular study that one is conducting. This study comprised 12 key informants as follows: the local chief, an official from an environmental organisation, an official from the Gaborone City Council planning department, an official from a funeral parlour, an official from a coffin manufacturing company, an official of memorial park which houses a cemetery, a member of the Village Development Committee and 5 members of the clergy from the local churches.

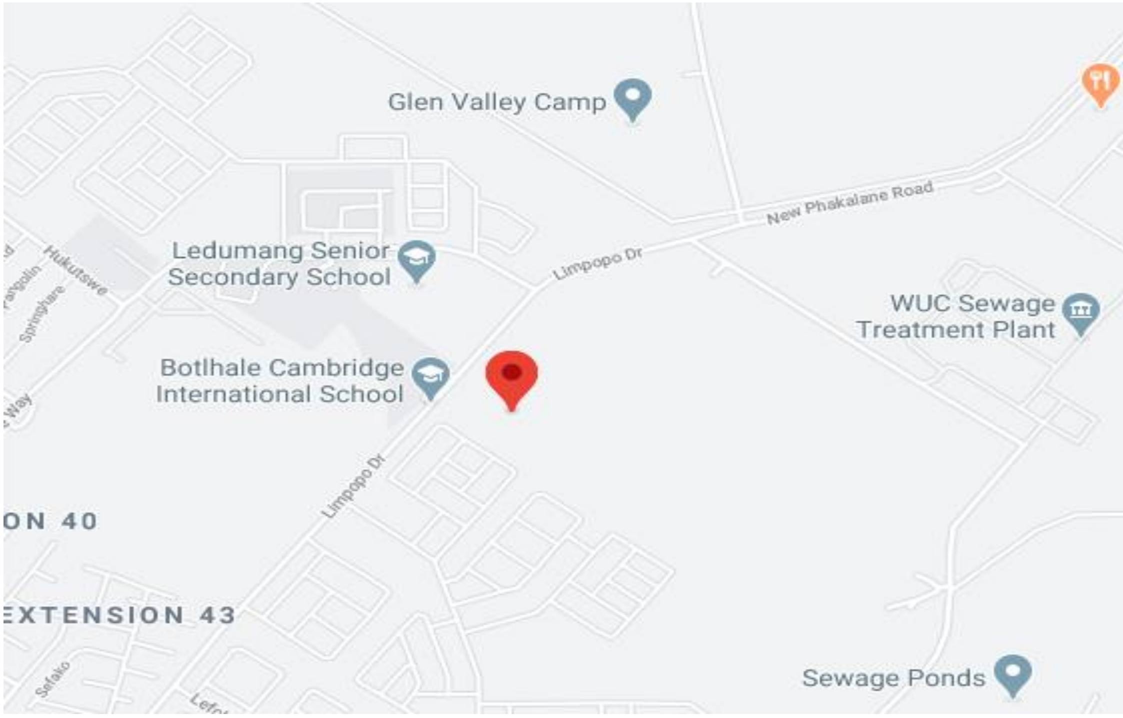

Figure 4.3 Ledumang cemetery

Source: Google Maps

4.6.2 Systematic random sampling

Systematic random sampling was used to carry out in-depth interviews with 30 householders. There are approximately 1,000 households in Ledumang ward and the researcher interviewed one person from every 33rd household. The total number of those interviewed was therefore 42 (see Table 4.1 for sample distribution).

Table 4.1: Distribution sample of those interviewed

Organisation	Designation	Gender
ELCB	Reverend	M
Methodist	Reverend	F
African Episcopal	Reverend	M
ZCC	Pastor	M
Eloi	Pastor	M
Lynns Funeral Parlour	Operations Manager	M
Lynns Funeral Parlour	Workshop Manager	M
Memorial Park	Operations Manager	M
GCC	Physical Planner	F
SomarelangTikologo	Business Manager	M
VDC	Chairperson	F
Ledumang Court	Traditional Chief	M
Ledumang community	Householders	10 Males 20 Females
TOTAL		**42**

4.7 Ethical Considerations

Ethical clearance was obtained from the Humanities and Social Sciences Research Ethics Committee (HSSREC) at the University of Zambia. Permission was also sought from the gate keepers of all the relevant institutions in this study. This is in line with Kombo and Tromp (2006) who state that a researcher requires a research permit before embarking on the study. Participants were required to give their full consent to being interviewed and they were fully informed about the nature of the study. They were assured that confidentiality and anonymity would be observed and that the information given would not be disclosed to any third party. The interviews were conducted among the Ledumang community householders using the local language as the majority of them were not comfortable with the English language. The interview schedule was translated into the local language. Any material used in the study that was sourced externally was appropriately acknowledged.

4.8 Analysis of data

Data analysis is the process of systematically searching and arranging the raw data with the aim of increasing one's understanding of the data (Miles and Huberman, 1994). In this study, data was analysed by identifying common patterns and themes of thought that emerged from the interviews concerning the disposal of bodies. The Land Ethic Theory was applied to show how traditional burial methods have a negative effect on the environment.

CHAPTER FIVE: FINDINGS AND DISCUSSION

5.1 Introduction

The first and second objectives were: (1) to investigate the current beliefs, attitudes and practices of people in Ledumang ward with regards to death disposal; and (2) To examine if there is evidence of a growing tension between religious beliefs towards death disposal practices, on the one hand, and environmental degradation, on the other. This chapter will present and discuss the findings from respondents' views in Ledumang community on death, the nature of the human body disposal, funeral processes, and on life after death. These beliefs are interconnected to give a more or less coherent worldview that justifies their preferred mode of human body disposal. For example, the views on the nature of resurrection will reflect whether community members might adopt other forms of the above mentioned body disposal besides burial.

5.2 Current beliefs, attitudes and practices of people in Ledumang ward with regards to death disposal.

A religious belief may be traditional or Christian or a mixture of both, and that belief may be held to be true whether or it may be unproven or irrational. Rebay-Salisbury (2012) pointed out that beliefs are a constructed form of communication enacted by society. They are related to how people think about the world and how they make it meaningful in their own terms, striving for order and reason about aspects of life which are beyond their control. She asserts that beliefs do not have to be coherent and consistent, and that it is possible to hold conflicting beliefs where circumstances can determine which beliefs are given priority at any given time. According to Arjzen (1985) beliefs develop a person's value system which in turn then guides behaviour. Blackburn (1996: 377) states that to value something "is to be inclined to advance it as a consideration in influencing choice and guiding oneself and others". Beliefs are thus linked to a person's values which in turn influence the choices and behaviour of individuals and communities.

An attitude is a personal stance that can take a bodily, emotional and mental form of expression. It is more clearly expressed as an emotional stance not easily separated from beliefs. It is an emotional tendency of an individual in favour of, or against any circumstances, events, objects, places or ideas. However, cognitional beliefs and emotional feelings are not easily separated as they tend to influence one another. Practices reflect the manner in which beliefs and/or attitudes are expressed in actions. They are the actual implementation of one's beliefs and/or attitudes in concrete situations.

When asked about burying the dead, one householder in his late seventies had this to say:[11]

> *These things we see them with you modern people. During the time of our grandparents, there were no coffins and people used to be buried in animal skins. My grandfather was buried that way, and even me, I would like to be buried that way because I was named after him. Also, I don't want the culture of other people lest I be rejected by my ancestors.*

Other householders also expressed a similar view adding that people used to be buried in their home villages amongst their tribesmen irrespective of where they died. This is in agreement with Biwul (2014) who noted that in African traditions, the dead were not buried away from their land of ancestry. In contrast, however, Evans-Pritchard (1949) reported that the Neur tribe of Sudan buried their dead inside their hut only if they died in the village. Otherwise, they were

[11] Personal communication, 10/02/21

buried at the cattle camp if they died there, or were even buried by strangers if they died somewhere else.

Amanze (2015) pointed out that funerary rites among Batswana have changed drastically because of Christian influence and western civilisation as many of the rites which were observed during the pre-Christian era have now become obsolete. He noted that the custom of burying the dead immediately after death has gradually changed as a result of refrigerated mortuaries which allow for corpses to be kept for days without rotting. All the householders pointed out that people are no longer buried in animal skins or blankets in their own yards but are buried in coffins at cemeteries. One woman householder in her late seventies had this to say:[12]

> *I had a chance to witness my grandfather being buried when I was young. He died on a Tuesday and the following day he was buried as he was sickly. He was not taken to a mortuary but instead was covered with a wet blanket until the day of burial in the kraal*.

Another woman also pointed out that her uncle was buried in an animal skin:[13]

> *During the funeral, a cow was slaughtered and its skin was used to bury my uncle. The elders did not go through the hassle of buying a coffin as coffins were not common at the time.*

Another said:[14]

[12]Personal communication, 15/02/21
[13]Personal communication, 10/02/21
[14] Personal communication, 15/02/21

When my grandfather died, a heap of sand was made inside his room and he was covered with the sand with only his head outside. Water was poured on the sand on a daily basis to keep him cool until the day of the funeral which was two days after his demise.

One respect in which attitudes and practices towards death disposal have changed is regarding funeral parlours. As Gaborone is the capital city of Botswana, death disposal practices tend to change more rapidly from the traditional practices than in rural areas. Funeral parlours are run by companies established to provide various services related to issues involving the funeral from death to burial. This has resulted in burial societies in rural areas and insurance funeral packages mostly in urban areas. With burial societies, people group together and make small regular payments into a central treasury such that, when then they die, their funeral expenses are paid out of this fund (Brown, 1982). Because the payment from one society is usually not always enough to cover all funeral expenses, it is a common practice to belong to more than one society (ibid.).

All householders confirmed that people nowadays arrange insurance funeral packages with funeral parlours to make the funeral process easier. They said that the package always includes the cost of a casket, mortuary services, a hearse, a grave cover, a burial programme and cash required for food. According to him:[15]

Dilo tse di a thusa fela thata ka gore leso le itlela fela le sa bolelela ope,ka jalo go nna bokete thata go boloka fa go sena dithuso tsa diphutho ka gore batho ba nna ba sena madi meaning this really helps because, as death does not announce its coming, it can

[15] Personal communication, 10/02/21

> *be very difficult without an insurance funeral cover to bury a loved one as people are always broke.*

In urban areas, insurance has overtaken the role of burial societies but the essence is the same. Both are considered essential for a successful funeral. Grant (1987: 138) has noted: "Few households can be prepared for the demands that death makes on them and none, without this help, would be able to react in the expected manner." Biwul (2014) has similarly stated that when it is time, death frequently comes to its victims without notice and does not give them time to make suitable preparations.

Burial societies in rural areas and insurance companies in urban areas are clearly serving a vital social need in Botswana. The levels of subscription to insurance companies, as shown in Table 5.1, comes in the package which ranges from silver to prestige, and the cost can range from 17,000-100,000 pula depending on the level one chooses.

Table 5.1: Lynn's funeral plan

Funeral Plan	Monthly Premium		Cost
	Member	Family	
Silver	P60.00	P105.00	P17.000
Gold	P90.00	P150.00	P25.000
Platinum	P120.00	P220.00	P38.000
Executive	P150.00	P290.00	P50.000
Premier	P235.00	P450.00	P80.000
Prestige	P295.00	P565.00	P100.000

The insurance companies are linked directly to funeral parlours and they introduce some environmentally harmful practices as will be shown below. The operations manager at Lynn's Funeral Parlour (LFP) described the stages involved when a dead body is brought for disposal.[16] The first step is to bathe and disinfect the corpse "for both health and safety reasons, and out of respect for the deceased". The next step is to refrigerate the body. The body can either be embalmed or refrigerated straight away without embalming depending on what the family wants. Smith (2019) noted that even though refrigeration can slow down decomposition, it

[16] Personal communication, 23/02/21

causes a body's skin to dry out and causes the facial features to sink and sag. According to the operations manager at LFP:[17]

> *Embalming is not done because it comes with a cost and most people do not want to pay extra. Those who do want embalming do it because they want to ensure that family members are not left with an undesirable last memory.*

The process of embalming is only compulsory when the body is going outside the country. In such cases, the procedure is carried out immediately after bathing the body.

The operations manager at LFP added:

> *Embalming is a process that temporarily preserves the body by slowing down the degenerative changes that follow immediately after death. It involves the removal of the blood from the deceased and replacing it with an embalming fluid. It accomplishes three goals: disinfection, preservation and restoration. The remains are disinfected so that harmful microbes are destroyed; they are preserved so that the natural processes of decomposition are slowed down; and they are restored so that a more natural appearance can be returned to the person.*

Smith (2007)[18] noted that embalming allows for a delay of burial and permits viewing of bodies for people to say goodbye. On the other hand, without embalming, the body must be buried quickly before decomposition begins. The main argument for embalming is to allow loved ones to say farewell and see the dead at peace (ibid.). Smith (2019) observed that seeing the body of a loved one is an important means of breaking through the natural impulse to deny death, and

[17] Personal communication, 23/02/21
[18]Cited in Guttman, 2012.

embalming offers the greatest chance for a family to have a peaceful final image of their loved one. Once the process is done, the body is dressed up. Some families choose clothing for the deceased from the clothes that the deceased liked very much while others go out of their way to buy new ones altogether. Some churches that have uniforms for their members use them instead of ordinary clothes for burying a member.

The researcher personally observed two funerals within the Ledumang neighbourhood. At both funeral houses, the windows were smeared with ashes. It was explained that this was to show people that there is death in that household. Another explanation was that it was so that the dead would not view themselves on the reflective surfaces of the windowpanes. There were people at the two homes besides the relatives. When asked about their understanding of death disposal, one householder in his late sixties referred to different practices performed when there is death:[19]

> *One practice is to take the deceased to a morgue of one's choice. Another practice is to congregate at the place where there is the bereavement because people congregate to support the bereaved family when there is a death.*

A female householder added" *go ya go ema ko losong go supa gore le rona morafe re hutsafetse le baswelwa, re na le bone mo kutlobotlhokong ya bone*"meaning that by going to the deceased's compound, they were showing to the bereaved that they were not alone in their loss.[20] Another householder said that they go there to help with the cooking because the bereaved are too weak to do such things because of their loss.[21] Wilson and Chiveralls (n.d.)

[19] Personal communication, 15/02/21
[20] Personal communication, 10/02/21
[21] Personal communication, 15/02/21

had similarly noted that funerary rites and practices have the potential to bring community members together as they gather to remember the dead. In this way, the community offers both material and emotional support. Grant (1987: 138) had observed: "Tradition in Mochudi … requires that sympathy is directly expressed by a visit to the home of the deceased". However, among the Asante of Ghana, funerals are usually showy events in which families try to outdo each other by putting up extravagant funerals even when they are struggling in meeting necessities. According to de Witte (2003: 531), visitors travel from near and far and "expect the bereaved family to entertain them with music, dance, drinks, and sometimes food".

Religion is an important aspect of funeral practices in Gaborone. The householders interviewed reported that a pastor usually led prayers in the evening, a practice that was also observed by the researcher.[22] One householder had this to say "*fela fa leso le thubega, letsatsi le lelatelang go simololwa merapelo ya kgomotso*" meaning that immediately when someone dies, the following day they start evening prayers.[23] He said that the prayers are meant to console the bereaved and make their grieving bearable. Amanze (2015) has noted that week-long prayer sessions are observed during which the mourners are consoled by the word of God from the Bible presided over by bishops, priests, ministers, pastors and church elders.

Another householder clarified that a funeral religious service is held prior to burial:[24]

> *This normally takes place at the church or at the home and it is meant to honour the life of the deceased by remembering how the deceased lived with others and to say their final goodbye.*

[22] Researchers observation, 05/02/21
[23] Personal communication, 25/02/21
[24] Personal communication, 15/02/21

The funeral service is followed by a burial at the cemetery which is close by, a cemetery which is not only used by the community of Ledumang but by the whole city of Gaborone.

All the householders interviewed mentioned that burials now take place on any day of the week whereas formerly they used to be mostly on Saturdays and Sundays. While some countries in Africa may have a special day for burials, De Witte (2003) noted that in Ghana, burials are held on Saturdays. This, of course, might easily change when the death rate begins to overwhelm mortuaries where bodies are preserved prior to burial. This is in line with Omonisi's (2020) assertion that in Africa, funeral ceremonies most often take place during the weekends on Fridays and Saturdays to ensure the presence of mourners, well-wishers and elaborate events. This seems reasonable as Saturdays are normally non-working days so that many people can attend without having to abscond from work. To the contrary, however, the researcher observed that there were funerals at the cemetery almost every day at Ledumang. These went on throughout the day and were not restricted to the early mornings as was the norm previously.

With Botswana having the 3rdhighest HIV and AIDS prevalence rate in the world at 22.20% (UNAIDS, 2021), it would be expected to have a high death rate, especially before the country introduced free universal access to anti-retroviral treatment. This problem was compounded by the surfacing of a new novel virus causing acute respiratory disease named COVID-19. The COVID-19 pandemic has significantly increased the urgency of burying people without delay. The number of deaths and the COVID-19 restrictions have led to people being "deprived of the most important rituals that normally occur following death" (Farahmandnia, Hamdaniel, and Aghababaeain, 2020: 464). One householder complained of the increase in traffic on the roads as most of these funerals are in the mornings when people are also going to work.[25] He added that people no longer wait for the funeral procession to pass as a sign of respect to the dead as was formerly the tradition. Consequently, those driving to work find themselves mixing with the funeral procession, a practice that was traditionally considered a taboo. At times, there can be two to three funerals passing at the same time so that delaying would result in being late for work.

All householders were reluctant at first to talk about issues relating to death because they thought that it was not an appropriate topic for discussion. Bouverette (2017) noted that death and funerals are socially taboo subjects. This has also been affirmed by Omonisi (2020) who opined that in most African nations, it is a taboo to discuss one's own death or the death of loved ones or even to discuss a plan about death. A woman householder in her late sixties had this to say:[26]

> *The traditional method of burial is best and it would be very wrong for the current generation to change it. Our generation does not know of any method of disposal other than that of our forefathers.*

When asked about who or what was the deciding factor in determining the mode of burial, it is clear from the responses of 30 interviewees as shown in Figure 5.1 that traditional cultural and religious beliefs are the most important factors. It can be seen how religious beliefs are largely, if not completely, determined by cultural beliefs. This is in line with Omonisi (2020) who states

[25] Personal communication, 10/02/21
[26] Personal communication, 20/02/21

that religion and culture are usually the deciding factors when decisions are made on how the body of the deceased should be disposed.

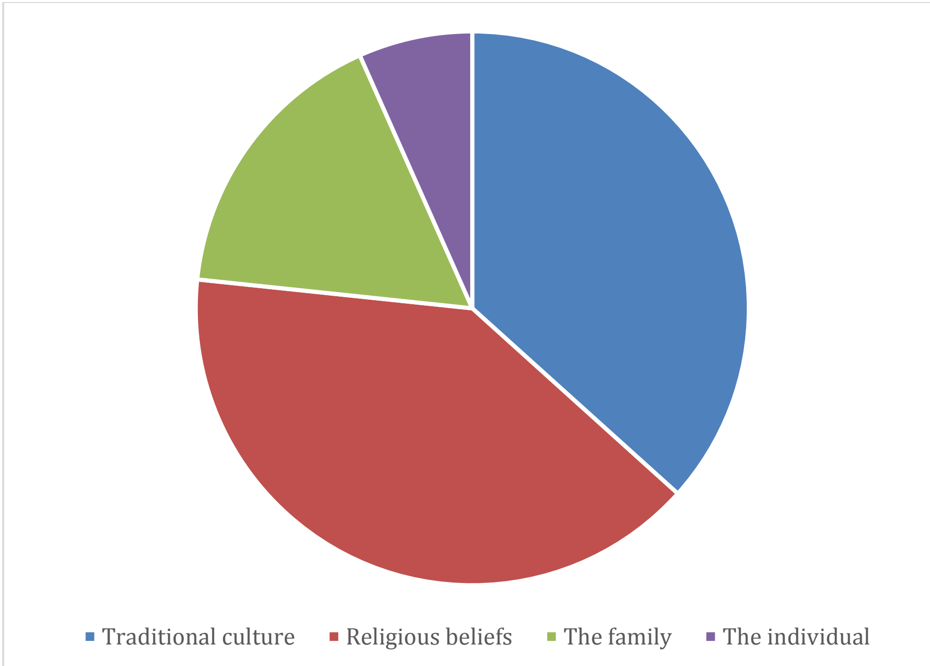

Figure 5.1: Factors determining mode of burial

5.3 Attitudes with regards to death disposal practices vis-a-vis cultural and religious beliefs.

5.3.1 Ancestral spirits

It became clear from interviews that belief in ancestral spirits was prevalent in peoples' thinking. Soresen and Rebay-Salisbury (2015) noted that such beliefs are based on the ideas that people create out of phenomena located outside of immediate, sensory experience and beyond empirical knowledge. They build on hopes and desires that lessen an awareness of the finality of death and establish a link between this life and the afterlife. One householder commented that when people die, they become ancestral spirits (*badimo*) who are expected to take care of their living descendants and, as such, the dead need to be respected by having graves that can be taken care of.[27] According to Ekore and Lanre-Abass (2016), some communities in Africa believe that the goal of life is to become an ancestor after death. According to them, this is one of the major reasons Africans believe that every person who dies must be given a "befitting" funeral. In addition, this must be accomplished by a number of traditional and religious rites and ceremonies as the deceased migrate to join the ancestors in the invisible world (ibid.). Amanze (2000) noted that there is a strong conviction among the Tswana that the ancestors are still alive somewhere. When things go bad in someone's life, a Motswana would exclaim, "*Badimo bame ba mphularetse*", meaning that the ancestors are watching in a different direction and they are operating against one. On the other hand, when things are going well, he/she may exclaim, "*Badimo bame ba ntlhobaletse*", meaning that my ancestors are happy with me. The basic belief is that the ancestors are alive and that they are watching over their people.

Mbiti (1990) has noted that there are many expressions which describe the phenomenon of dying in many African societies. These include expressions such as, "he has breathed his last", "he is sleeping", "he has gone home", "he has passed away" and "he has been called". According to Mbiti, these expressions show that death in African societies is conceived as a departure and not a complete annihilation of a person.

According to Baloyi and Makobe-Rabothata (2014), when they die, people move to the spirit world to be in the company of "the living-dead" or ancestors. The ancestors protect and provide guidance to those still living in the material realm and they are therefore highly respected,

[27] Personal communication, 20/02/21

venerated and very important to the community of the living (King, 2013).The deceased move on from the company of the living and their spirits join the company of the dead. These spirits have the power to cause bad luck if not buried properly and their ghosts (*dipoko)* can remain as part of the world of the living to wander around and cause harm to those who are still alive. The traditional chief made the following comment:[28]

> *People must be buried underground where we can always visit their graves to consult and appease them when things are not going well. They are buried facing west because it is believed that it is the direction of the ancestral spirit world. This is why even now, our dead face the west and no one can face a different direction because it is considered a taboo. It is believed that if they are buried facing a different direction, they will pull others to themselves.*

This belief is also reported among the Nuer where an adequate sacrifice of a cow or ox must be made to the ghost of a dead person, except for babies who are not regarded as persons (Evans-Pritchard, 1949). However, in contrast with the Tswana, the Nuer do visit graves of their dead. "The graves are not a place of cult and are not long remembered" (Evans-Prichard, 1949: 57). However, the belief in the continued existence of the dead in the form of ghosts or spirits that have an influence on the living is commonplace in Africa in general and Botswana in particular. This fact is also highlighted by Tafira (2015) who says that "in African cosmology, there is mutuality between humans and the earth: the earth has the omnipotent power to punish transgressors. However, a particular punishment is not directed towards the offending party; it is collective and universal."

[28] Interview with the traditional chief, 19/02/21

5.3.2 Life after death

In addition to traditional beliefs, some of those interviewed reported that they follow the Christian beliefs because they follow Christianity. One male householder said that the Christian belief in life after death is based on the resurrection of Jesus Christ:[29]

> *Just as Jesus Christ resurrected, so the same thing will happen to humankind. Jesus Christ died on the cross and was buried in a tomb from where He resurrected. The fact that Jesus Christ resurrected is a testimony that He was not dead but sleeping. This is why we say that when people have died, they are 'sleeping' or 'resting' because we believe it is temporal.*

He continued that there is the belief that when people die, they should be buried because the physical body is going to rise just like that of Jesus Christ. He then quoted John 20:6-7 which says:

> *Then Simon Peter came following him [John], and he went into the tomb; and he saw the linen cloths lying there, and the handkerchief that had been around his head, not lying with the linen cloths, but folded together in a place by itself.*

A female householder stated that there is enough evidence that Jesus Christ's physical body rose from the dead and that, consequently, humanity will rise again after death. This belief also gives humanity the hope that they will be rewarded for their time on earth. She quoted Revelation 20:11-15 which talks about how the Bible describes the afterlife:

> *Then I saw a great white throne and the One who sat on it from whose face the earth and the heavens fled away. And there was found no place for them. And I*

[29] Personal communication, 20/02/21

saw the dead, small and great, standing before God, and books were opened. And another book was opened which is the book of life. And the dead were judged according to their works by the things that were written in the book. The sea gave up the dead who were in it, and Hades delivered up the dead who were in it. And they were judged, each one according to their works. Then death and Hades were cast into the lake of fire. This is the second death. And anyone not found written in the book of life was cast into the lake of fire.

Sorensen and Rebay-Salisbury (2012) note that the burial of a dead body (inhumation) offers a chance to the bereaved of being allowed to maintain a visual image of their loved one as sleeping peacefully in the subterranean grave. They added that Christian history sees inhumation as the religiously most agreeable form of disposal in accordance with biblical references and the Christian tradition that the dead will be resurrected at the second coming of Christ. Apparently, Christ is going to come from the east and this belief has contributed to the layout of our cemeteries. Sorensen (2009)[30] noted that graves in Denmark were oriented towards the east so as to anticipate judgment day when the dead will sit up in their graves and face the light coming from the east with the Redeemer.

5.3.3 Attitudes to disposal of dead bodies other than burial.

When asked about their understanding of death disposal, all the interviewees said that death disposal is the removal of the dead from the living by burying them six feet underground at the cemetery. They expressed the belief that they are following in the traditional footsteps of their forefathers who practiced this method before them. Some interviewees, however, said that as

[30]Cited in Sorensen and Rebay-Salisbury, 2012).

Christians, they were now following the Christian religious tradition in which Jesus Christ was buried in a tomb. This is a form of Christian enculturation. When asked about other methods of disposal of the dead that they are aware of, all the householders mentioned cremation. They had heard about it from the Hindu community although they did not know of anyone who had ever been disposed of in this way. They acknowledged that it was not common for them to dispose of bodies in that way and that they would never choose to do it. When asked about their attitude to cremation, the negative responses of the 30 householders are shown in Table 5.2.

It can be seen that the focus on the Christian belief in resurrection and the traditional cultural understanding of the importance of correct burial underground are the most common responses with a total of nearly two-thirds (63%) of those interviewed expressing disapproval of cremation either on account of Christianity or Tswana culture. Masango (2005) pointed out that Africans and Afrikaners traditionally hold the view that the sacredness of the body belongs to God, and one should not tamper with God's creation. This is in line with why most of the respondents are against cremation because they feel it deprives them of many good things which the traditional burial rites preserve. It is interesting that only 3 of the 30 householders attributed a traumatic experience of the bereaved to cremation! This seems to deviate from the concern expressed by Farahandnia, Hamdaniel and Aghababaeain (2020) that disrupting mortuary ritual could harm the grieving process of the bereaved and may suggest a shift in such beliefs.

Table 5.2Attitudes against cremation

Disrespectful to the body	4
Does not allow for resurrection	10
Traumatic to the bereaved	3
Lack of information	1
No chance to say goodbye	2
No place for loved ones to visit	1
Against culture	9

Hart and Casper (2004) noted that there are two main choices for disposal of human remains for the majority of the world population, namely, burial and cremation with burial being the most common in Africa. However, they acknowledged that cremation has recently gained popularity to such an extent that even in countries where it was not practiced, it was beginning to be appreciated by local people because followers of cremation are found in those areas and local people are beginning to understand it and its benefits.

Of the 5 pastors interviewed, 2 who belonged to the African Independent Churches stated that their church doctrine was the basis for their belief in burial practices. The pastor from Eloi confirmed that the basis of his church's belief is Genesis 3:19 which states that God created a person out of the soil, and that as the body is dust, it should be returned to dust (the soil of the earth) at death. He acknowledged that it is difficult to disconnect the spiritual relationship between the living and the dead and that cremating a human body results in bringing about a sad disconnection.

On the other hand, the other 3 pastors allowed for other methods of disposal of bodies. One of these pastors from the ELCB noted that his church was silent about the way a body might be disposed. He explained that it did not promote any particular kind of disposal but that it depended upon believers to choose their own disposal method. He said:[31]

> *The church believes that it is the spirit that lives and that it is for the spirit to rise, not the physical body*.

He emphasised that for this reason, his church is not particular about any one method of disposal, and that no one should be worried that the body will be destroyed and miss the resurrection because, in his words, "God will give all His children a new body, glorious and incorruptible to dwell with Him forever in Paradise."

A female pastor from the Methodist Church had a similar belief with respect to the rising of the spirit. She said: "As long as dust goes to dust and ashes to ashes, any method of disposal is accepted in our church. The lack of their bodies will not deprive individuals of the resurrection." She also referred to the scene in Genesis 3:19 where God told Adam that "by the sweat of your face, you shall eat bread till you return to the ground, for out of it you were taken; for you are dust and to dust you shall return". According to her, God's word has spoken that all must return to dust and, as such, cremation speeds up the process of returning people to dust and should be embraced not shunned.

[31] Personal communication, 05/02/21

Table 5.3: Understanding of disposal of the body

	Burial only	Cremation	Both
30 Householders	The majority endorsed burial for two reasons: a. Christian belief b. Ancestral belief	Rejected by all as it does not allow for resurrection and does not show respect for the dead.	Cremation rejected by all
Mainline churches			Accommodating both forms of disposal because of the belief in the resurrection of the soul as an inseparable unity of body and spirit.
African Independent Churches	All affirmed burial because of their belief in the resurrection of the body	Rejected	Rejected

When asked about whether burial, cremation or both were acceptable, Table 5.3 shows the responses. Whereas householders and the African Independent Churches were more exclusively attached to traditional forms of burial, the mainline churches expressed a more flexible attitude to cremation practices.

It should be noted, however, that insurance policies have begun to have an effect on burial practices. It is very expensive to give beloved ones a decent burial ceremony in Botswana. In their bid to give their loved ones befitting burials, people have joined burial societies and insurance companies to help them in their time of need. Burial societies are mostly found in rural areas where people have limited sources of income while insurance policies are mostly in urban areas. Of the 30 householders, 15 confirmed having a funeral insurance policy with different insurance companies, 10 belonged to the local burial society which is strictly for the community of Ledumang, and only 5 had nothing at all because of unemployment. One householder in his mid-fifties revealed that funeral insurances are of great value because of the cultural importance of having a proper and befitting funeral which should be an all-week event. He also revealed that he himself and many others have more than one insurance policy in order to have extra cash after the funeral. In this way, he said that “death insurances have become money-making schemes”. One person can be insured by six people who end up contributing 10% each of the whole amount with others not contributing at all thereby using the money on themselves and not on the burial as it is its purpose.

5.3.4 Benefits of current death disposal practices

When 30householders were asked for their views on the benefits of the current death disposal method, the responses are shown in Table 5.4.

Table 5.4: Views of householders on benefits of current death disposal practices

Allows mourning of a loved one	4
Provides a permanent place of rest	9
Helps with the grieving process	2
Acts as a situation for introductions	1
Supports religious beliefs	10
Acts as a sign of remembrance	3
Cemetery is a source of employment	1

The most numerous responses focus on religious beliefs and giving the dead a permanent place of rest. Such responses seem to imply an adherence to the traditional belief in the spirit world of ancestors and/or the Christian belief in resurrection. Burial practices also allow people to mourn the loss of their loved ones and letting them go. In the words of one householder:[32]

> *The mere fact of witnessing a coffin being lowered into the ground and pouring the soil in the grave makes people see that the person is gone and thereby giving them the closure they so much needed.*

He argued that it is often difficult to believe in someone's death until you actually see the person being lowered in the grave. The traditional chief of Ledumang felt that burial gives one a chance to be buried amongst one's loved ones. For example, if a husband passes away and is buried, his wife can choose to be buried beside him so that they can be together for eternity. This is done by reserving the space beside the grave so that no one else occupies it. This was also confirmed by the operations manager of Memorial Park who disclosed that their mandate was to sell graves to the community.[33]

Different types of plots are available for sale in Memorial Park. There are single plots, companion plots which are meant for a married couple, or family plots where a small area of the cemetery is reserved for a whole family. This is a service which is not available at the city council cemeteries so that many people are opting to reserve grave sites. The selection of a grave site enables the fostering of an emotional connection with the final resting place and provides a sense of permanence in that people know where they will be buried (Klaassens and Groote, 2010). This trend is growing because "people come for well-maintained graveyards"

[32] Personal communication, 25/02/21
[33] Personal communication, 23/02/21

as community graveyards are not being taken care of properly. They even come from as far away as 100 km from Gaborone to access the services of Memorial Park. This trend was also mentioned by Wilson and Chiveralls (n.d.) who noted that "memorial parks and lawn cemeteries tend to be much greener than traditional burial areas and, rather than presenting a gloomy vista of ranks of tombstones, they are characterised by manicured gardens and lawns".

Of the 30 householders interviewed as seen in Table 5.4, 9 said that the burial method is good because it provides a permanent place for the dead which can be visited by the living in order to remain connected and be in good relations with them. To them, the grave is not just a disposal site but represent the final resting place of the dead that remains lodged in the memory of the living. 10 insisted that their traditional and/or religious beliefs were in support of it. For example, the majority of those belonging to Christian churches and who believe in the doctrine of the resurrection of the body feel that they have no other option than burial. The male pastor from the ZCC pointed out that "*letsatsi lengwe mmele ya botlhe ba ba swetseng mo Moreneng e tla tsosiwa go kopanngwa le mewa ya yone*" meaning that one day the body of those who have died in Christ will be resurrected and reunited with their souls. Therefore the burial of the dead body, African Christian adherents believe, allows for the resurrection of the body. Others gave different reasons for observing current burial practices. 1 said that for those who may not be present at the time of burial, it helps with the grieving process by visiting the grave and ultimately finding closure.[34] Visiting the grave where the body is buried is considered to be a sacred ritual which allows the living to feel closer and connected to their loved ones. However, in the case of cremation or other modern forms of disposing the bodies, the bereaved will not feel connected to the departed. Another householder pointed out that even those who are not

[34] Personal communication, 15/02/21

yet born can be introduced to their ancestors by going to the grave site.[35] She gave an example of a woman whose husband had died after she had become pregnant, and she was able to take the new-born child to the grave later on to be introduced to the father. Auger (2000) [36]also noted that cemeteries and burial practices represent a place for meeting with the dead and for remembrance for loved ones.

In the Christian understanding, the soul and the body are two inseparable dimensions of the person and are temporarily separated at death. The Catholic Church believes that whereas the body decays, the soul goes to meet God while awaiting its reunion with the glorified body (Catechism of the Catholic Church).[37] The resurrection of the body emphasises that the material body of the one who has died will be transformed into a resurrected body and united with the spirit dimension. Kearle (2004) noted that as the body is considered the dwelling place of the Holy Spirit and a living temple of the divine, cremation is considered to hinder the body's resurrection and represent a lack of care.

The grave in which one is buried acts as a sign of remembrance to the living. One woman householder pointed out that people always remember their dead whenever they go to the cemetery for other burials.[38]

> *We always see them scattered around the cemetery checking their relatives' graves. This shows that they have not forgotten them.*

[35] Personal communication, 25/02/21

[36] Cited in Guttman et al., 2012.

[37] The subtle distinction between the soul and the spirit is not being discussed here. For our purposes, the soul and the spirit are used to refer to the same reality.

[38] Personal communication, 25/02/21

She went on to highlight the fact that some wealthier people erect tombstones as a way of creating a lasting memory to their descendants. A beautiful tombstone is seen and admired by everyone who comes to the cemetery and this makes the person lying there to be remembered. Auger (2000) noted that people construct tombstones as symbols of remembrance and comfort for the living. Similarly, Scalenghe and Pantani (2020) stated that cemeteries are places where memories of the dead are supported by enduring funerary monuments. Auger (2000)[39] also noted that cemeteries play a role in helping the living to grieve and to remember. This clearly shows that cemeteries are more than just a disposal site for the dead but are rather an important place for the living and, as such, express the connection between the living and the dead.

A woman householder in her mid-seventies pointed out that the cemetery can also be a source of employment. She stated that her son works at the cemetery as a security guard saying "*rona re a ja re jesiwa ke mabitla*", meaning, we are able to survive because of the cemetery.[40]Wilson and Chiveralls (n.d.) also noted that burying the dead created employment for grave diggers and gardeners to maintain the cemetery grounds. Furthermore, burial practices have given rise to the development of thriving funeral industries. According to Northcott and Wilson (2008),[41] the funeral industry has become a large employer providing both direct and indirect forms of employment such as the construction of caskets, building funeral homes, embalming the dead, maintaining cemetery grounds, supplying flowers, printing obituaries and providing for travel. For these reasons, Guttman et al. (2012) pointed out that in view of the profits made by this industry, there would be resistance to changes that would limit these practices. However, as shown in Table 5.4, only 1 out of the 30 respondents viewed cemetery employment as one of

[39] Cited in Guttman et al., 2012
[40] Personal communication, 20/02/21
[41] Cited in Guttman et al.. 2012

the benefits of current death disposal practices. This suggests that, whereas religious beliefs are clearly a major factor in attitudes concerning burial practices, employment is not a major factor.

5.4Environmental factors militating against the traditional form of burial practices.

Most people look at death disposal as sacred and deeply rooted in religious and cultural beliefs such that they do not take time to question the way things are done. This is borne out by the data presented in Table 5.4 above. However, some people's preferences may be because they are still unaware on the negative impacts of current death disposal practices simply because they are not evident to the average person who is attending the funeral. The invisible negative impacts include those impacts which affect the environment (see Table 5.5 for views of householders). These include the following which are discussed below: air pollution, contamination of underground water, loss of biodiversity and deforestation, defacing the natural beauty of the environment, implementing a questionable use of land, and contributing to the spread of covid-19.

Table 5.5: Views of householders on negative effects of traditional burial practices

Air pollution	3
Contamination of underground water	5
Deforestation and loss of biodiversity	1
Defacing the natural beauty of environment	6
Shortage of land	12
Contributing to spread of covid-19	3

5.4.1 Air Pollution

Air pollution refers to all destructive effects of any source which contribute to the pollution of the atmosphere and which ultimately lead to the deterioration of the atmosphere. This can be due to both human interventions and natural phenomena – although natural phenomena have a way of correcting themselves in the long run if left to themselves. There are signs that current death disposal practices can cause air pollution. 2householders living adjacent to the funeral complained of a bad smell coming from the direction of the cemetery at times. One of them confirmed that she once felt a strong smell coming from within the cemetery when she went for a burial. She was concerned about the effect that these smells might have. Dent (2002)[42] noted that the body is made up of 64% water, 20% protein, 10% fat, 5% mineral and 1% carbohydrate which decompose into different substances and potential pollutants. Protein decomposition in

[42]Cited in Guttman et al., 2012.

particular releases gases like purscine and cadavarine, both of which are toxic with a foul smell. According to Bachelor (2004),[43] "gases hovering over cemeteries were suspected of causing anything from tarnishing silver to deadly disease like cholera and typhus". Oliveira et al. (2012) have similarly noted that cemeteries can be harmful to the health of people living nearby. They explained:

> *Cemeteries represent a source of environmental liability due to their potential to accumulate and release large quantities of contaminants generated by the decomposing of corpses. Effluents can carry microorganisms and heavy metals through the soil to water resources. Since these environments have concentrated potential polluters, populations living close to cemeteries may be exposed to elevated levels of highly harmful contaminants to human health.*

Another householder, a male in his early fifties, complained of car exhaust from the increased traffic on the road related to funerals, especially in the mornings when they go to work:[44]

> *Traffic has always been there, but nowadays it is worse because of the increased numbers of funerals at Ledumang cemetery which is due to covid-19 deaths. Some of these cars are not roadworthy as they are smoking. As we have to wait a long time in the traffic, we are inhaling the smoke from these cars which is endangering our health and the health of the environment.*

According to Krzyzanowski et al. (2005), transport-related air pollution contributes to an increased risk of death, particularly from cardiopulmonary causes. This is because traffic contributes to a range of gaseous air pollutants and to suspended particulate matter. Green (2018) similarly noted that diesel engines emit high levels of particulate matter which are

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43 Ibid.

44 Personal communication, 20/02/21

airborne particles of soot and metal. These can cause skin and eye irritation and allergies, and very fine particles lodge deep in the lungs where they cause respiratory problems. Carbon monoxide, an exhaust gas, is very dangerous to infants especially. It also interferes with the blood's ability to transport oxygen and causes headaches, heart damage and death (Green 2018). The business manager of Somarelang Tikologo (ST) acknowledged that car pollution is one of the major causes of global warming because of the many cars found on the roads. He said:[45]

> *Normally when there is a funeral, relatives and friends come from afar to bid farewell to the deceased. These people come with their cars, increasing the ones found in the locality and thereby emitting more carbon dioxide and other greenhouse gases which contribute to global warming pollution.*

He further pointed out that people rarely want to share a car during funerals. The point being made is that although congestion of cars is a normal practice, it becomes significantly increased when funerals are taking place.

5.4.2 Contamination of underground water

Of the 30householders interviewed, 5were of the view that burying people underground can somehow affect underground water if it happens that the cemetery is sited on top of the water table. Ground and surface water are a source of potable water for both human and non-human life. If it happens that it is contaminated, all the life forms found within that area can be threatened. Their argument was that as the body decomposes, the contents in the coffin seep into the ground and then into the ground water which is later used by people, animals and plants. Soil contamination can also occur making the vegetation within the area harmful to human

[45] Personal communication, 26/02/21

health and animals as the poison can run into the food chain. This is in line with what was confirmed by Ucisik and Rushbrook (1998) when they said that there is seepage of decay products percolating into water during putrification of the human corpse. According to them, this seepage contains bacteria, viruses and organic and inorganic chemical decomposition products which could be a cause of local epidemics from waterborne diseases where the groundwater is used as a water source. The business manager of ST agreed that both the decomposing body which is sometimes embalmed and the coffin materials themselves produce chemicals and toxins that move through the soil and contaminate the environment including the underground water.[46] He argued that the treated timber used to make coffins may kill termites that come into contact with it. Over a long period of time, these treatment chemicals leak to the underground water aquifers contaminating them. He pointed out that the chemicals are harmful to the environment both under and above the soil when they leak overtime. He acknowledged that due to the lack of adequate standards or monitoring authority, funeral parlours use whatever they can manage in order to accomplish their objectives. Guttman et al. (2012) noted that the main sources of pollution from cemeteries are human bodies and embalming fluids which primarily contain formaldehyde. Wood caskets also pose a threat if wood preservatives which can contain arsenic are used (Spongberg et al., 1998).[47]Spongberg and Becks (2000)[48] were of the same opinion that cemeteries act as potential contaminants. They noted that the abundance of corpses in cemetery soil provides an obvious source of organic contamination, and the fluids from decomposing bodies in graveyards can leak into underlying groundwater unless leak-proof caskets are used.

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[46] Personal communication, 26/02/21

[47]Cited in Guttman et al., 2012.

[48] Ibid.

The Operations Manager of Lynn's Funeral Parlour also confirmed that the liquid that they use for embalming has formaldehyde and is very strong. It lingers around the space even after use. He said that the smell makes one to cough which is why it is necessary to wear protective clothing when performing the procedure and not allow anyone in the room except those carrying out the procedure. This is done in order to protect the health of the employees. Mao et al. (1994) found this out in their study after collecting air samples from six funeral homes. They noted that the average formaldehyde concentration in the air in embalming rooms was 0.74 ppm with a peak of 5.26 ppm which caused eye and upper respiratory track irritation in some employees. The manager added:[49]

> *If this substance has these effects on people, then it means it can be harmful to the soil underneath and also to the groundwater if there is any at the cemetery.*

He acknowledged that the company has never bothered to investigate the effects that the embalming liquid (formaldehyde) might have on people as well as on the natural environment. This is due to the fact that the Waste Management policy is silent about pollution from the cemeteries. Cemeteries are managed by the council bye law and body disposal is not considered as waste.

Uslu et al. (2009) noted that formaldehyde is a volatile organic compound, a potential carcinogen known to cause comas, internal bleeding and death. Guttman et al. (2012) stated that formaldehyde had been listed for future banning by the European Union as it had proved to be a risk to those working with the substance. In addition, Cogliano et al. (2005) [50]drew attention to the fact that in environments where formaldehyde is manufactured, death rates from

[49] Personal communication, 23/02/21
[50]Cited in Guttman et al., 2012.

nasopharyngeal cancer were significantly increased. Furthermore, they highlighted the fact that a relationship had been confirmed between the development of cancer and formaldehyde. Neckel et al. (2017) pointed out that at present, there is the danger of lack of management and treatment of highly pathogenic effluents released by corpses during the decomposition process.

Sixty years ago, Rachel Carson's *Silent Spring* helped to start the modern ecological movement. Carson (1961) highlighted the pervasive environmental effects of chemicals including pesticides and detergents on the terrestrial and aquatic system. Dead birds were found to have ingested huge amounts of chemicals such as DDT. Although most of these chemicals were used in agriculture and did not include those in the treatment of dead bodies of humans, nevertheless there is ample evidence on the harmful environmental impacts of chemicals such as formaldehyde through contamination of ground water and cemetery vicinities (Allemann et al. 2018; Guttman et al. 2012; Holness and Nethercott 1989).

5.4.3 Loss of biodiversity and deforestation

The business manager of ST identified loss of biodiversity as one among other effects of death disposal practices[51.] He noted that every species has a role to play in creating harmony in the ecosystem irrespective of its size so that by destroying the forest, many life forms living there are destroyed. This can end up causing species extinction as some may fail to adapt to the changing conditions. He pointed out that the location of cemeteries tends to destroy the vegetation of the site thereby causing deforestation because trees have to be removed. Consequently, many of the species found in that area are destroyed. He went further to say that "the forest is a home to ecosystems which interact with one another so that by destroying the

[51] Personal communication, 26/02/21

habitat, we are destroying their home". Figure 5.2 shows the levelled ground where graves are going to be dug. Trees and vegetation which were housing life forms there were removed. According to Lipper (2000:26), biodiversity took many millions of years to evolve, and there is no possibility of getting back the estimated 50,000 species that go extinct every year.

When quizzed about how the coffin-making business is affecting the environment, the workshop manager of Lynn's Funeral Parlour said that it does not affect the environment because they procure the materials from China and South Africa. He emphasised that it is not the trees in Botswana that are being cut and that they cannot be held responsible for causing deforestation. This may be true, but the need for wood in coffin-making still raises the problem of deforestation and its effects on the natural environment. Deforestation has a huge impact on global warming because trees act as sinks and they absorb carbon dioxide in the atmosphere through the process of photosynthesis.

Figure 5.2: Trees and vegetation removed at Ledumang cemetery.

Source: Field Data, February 2021.

According to the United Nations Environmental Programme (UNEP), about 1.6 million tonnes of carbon dioxide are produced by deforestation in countries of the South. Trees therefore play an important if not indispensable part in preserving the health of the natural environment. Greene[52] has convincingly shown how problems affecting the natural environment in any one country affect other countries as well so that countries need to work together. Hence, as Botswana shares boarders with South Africa, if South Africa is going to experience problems by the cutting down of its trees for wood, Botswana is going to be affected as well.

Allemann et al. (2018), who had collected coffin materials from one of South Africa's oldest and largest funeral suppliers, found that coffin materials such as handles and ornaments were made of materials such as aluminium, copper, mild steel, zinc and its alloys, as well as silver and bronze. The use of plastic handles in coffins has recently become more common. Motlatsi (2007) has noted that, in the material safety data sheets of these materials, the plastics comprised polypropylene and contain traces of formaldehyde. Traces of formaldehyde were also found in the varnish used on coffins. Jonker and Olivier (2012) have similarly pointed out that the fabrication materials of coffins may contain harmful and toxic metals that could permeate the soil.

5.4.4 Defacing the natural beauty of the environment

The chairperson of the Village Development Committee (VDC), the physical planner of Gaborone City Council, and all the householders expressed an acute awareness of the

[52] Cited in Baylis and Smith, 2006.

unpleasant appearance of the cemetery in Ledumang. They complained that the cemetery is not well taken care of and that this has caused the area to look spooky. One particular woman householder in her sixties pointed out that formerly people used to visit the graves of their loved ones almost every month to keep them in good condition. However, she went on to say:[53]

> *Malatsi a o kare go latlhiwa ntsa e suleng! Batho ga ba sa tlhole ba etela mabitla a batho ba bone go bona gore a ntse jang le gone go a phepafatsa tota meaning that nowadays is like people are throwing away a dead dog! They never come back to see how the grave is, let alone to clean the surroundings.*

She blamed the untidiness to the fact that as people come from afar to bury their loved ones in Ledumang, it becomes too much of a burden for them to keep on checking the graves because of the distance involved (see Figure 5.3).

Figure 5.3: Unkept appearance of the cemetery at Ledumang.
Source: Field Data, February 2021.

[53] Personal communication, 20/02/21

The business manager of ST stated that there are instances where the burial results in the soil sinking.[54] When this happens, the coffin also sinks and the soil can be carried away during the rainy season thereby affecting many life forms in the soil. The chairperson of the VDC said that the cemetery makes the overall environment look particularly ugly because it is located between houses and schools.[55] The physical planner of the GCC also agreed that the cemetery is not properly looked after, and that it is dilapidated and unattractive.[56]She continued:

> *It is high time that town planners consider making use of cemeteries, not only as burial sites but as active parks with supporting activities like florist shops, snacks and beverage units, shaded sitting areas and Wi-Fi spots. This would attract people to the place and it would come alive and no longer be seen as a spooky area where people are afraid to even pass nearby.*

This is supported by Maddrell et al. (2018) who stated that the future planning of cemetery spaces needs to consider the functional, symbolic, social and leisure aspects of a diverse multicultural society. It needs to take account of the comfort and safety of visitors and the mediation of different user needs and interests. They suggested building a café, an information point or a flower shop which would also increase personnel on site to enhance the social aspect of the cemetery. It would also improve the natural beauty of the environment.

5.4.5 A questionable land use practice

The most common form of body disposal is in-ground burial, and this requires a significant amount of space. As can be seen in Table 5.5., of the thirty householders interviewed, 12

[54] Personal communication, 26/02/21
[55]Personal communication, 19/02/21
[56] Personal communication, 22/02/21

commented that due to the increase in population, there has been a greater demand for land for development, housing, agriculture and recreation. One woman noted that she has been applying for land for twenty years but still has not been allocated any. She believed that cemeteries were taking up the spaces that could have been given to her and others for residential purposes. Tafira (2015) highlighted that for Africans, land is everything so that depriving them of land meant robbing them of their personhood, being and identity. The chairperson of the VDC expressed similar sentiments.[57] She was of the view that a police station could have been placed where the cemetery is as there is no police station in Ledumang, even though the crime rate is high there. She said that they had to travel a long way to access policing services at Broadhurst.

Population increase in urban areas such as Gaborone has resulted in an increased demand for land such that houses and other developments are now very close to the cemetery which used to be very far from people. Lauwers (2015) [58]noted that building houses near cemeteries is a result of population growth which poses the social need to occupy those areas. Furthermore, the proximity of a cemetery decreases the value of the real estate nearby. Scalenghe and Pantani (2020) drew attention to the fact that the way in which land is being used today is a very serious contemporary issue. They claim that the practice of inhumation is a contributory factor. Land used for burials is land taken away from other urban developments.

[57] Personal communication, 19/02/21
[58]Cited in Neckel et al., 2017.

5.4.6 Contributing to the spread of covid-19

The strict covid-19 regulations have affected many African societies in the way they perform burials. Three householders felt that the traditional way of burial may have helped to spread the coronavirus. One of them said:[59]

> *The fact that we congregate at the mourning place means that we are contravening the covid-19 protocols and that alone helps spread the disease. We have no choice but to congregate and show our support for the bereaved family.*

She acknowledged that a lot of people had been diagnosed with the virus immediately after the funerals they attended. She herself had lost an aunt due to the pandemic because she went to a funeral. A day after coming back, her aunt started being sick and ultimately died because she had underlying health issues. Funeral gatherings have undoubtedly been one cause of spreading the disease because people think that it is their duty to pay their respects to the dead by going to funerals. This results in people spending much time together in close proximity thereby increasing the chances of spreading the virus. This in turn puts pressure on health facilities causing shortages of hospital beds. It also lengthens the time to be attended to by an ambulance which may take two or three days. Such a delay ultimately results in more deaths which create pressure on burial sites. The strict covid-19 regulations have also affected the way burials are performed. Zungu (2021) significantly noted: “The imposition of measures such as social distancing and the support of the bereaved from a distance go against the spirit of Ubuntu and the communal nature of the African people”

[59] Personal communication, 25/02/21

5.5 Factors favouring cremation and other forms of burial

According to the findings of the study, almost all householders have very little or no knowledge about methods of death disposal other than burials. Although they may have heard about cremation from the Indian (Hindu) community, they do not know anyone who has ever been cremated and they do not want to consider it. One householder had this to say " *fa ke akanya go tshuba moswi ke akanya botlhoko jwa go fisiwa ke molelo jo moswi a boralalang, go tshwana le motho a swa gabedi*" literally translated as when I think of cremation, I think of the pain that the deceased is going through, this is the same as dying twice.

Another woman householder in her late sixties acknowledged that she had heard about cremation when she was working for an Indian couple whose son had passed on and it is something that she cannot opt for her loved ones.[60] However, the only crematorium that exists in Gaborone is the one for the Hindus community which is only used by Hindus. On the other hand, the physical planner at GCC noted that cremation can be a way of saving land in urban areas, especially in Gaborone where there is no land for expansion.[61] She said: "Gaborone has run out of land and the only option would be to consider cremation. We can no longer avoid the issue because some cemeteries have already reached their full capacity and land for more cemeteries is limited". She pointed out, however, that the council and the relevant stakeholders would have to work very hard in order to sensitise people about the problem of land shortages together with the benefits of cremation in relation to land. This was also confirmed by the Methodist pastor who acknowledged that cremation used little or no land at all as the cremains (cremated remains) can be kept in the home, scattered or stored in a small columbarium that

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[60] Personal communication, 20/02/21

[61] Personal communication, 22/02/21

can hold many urns in a small area (see Figure 5.4 for an urn cemetery).[62] Furthermore, if surviving family members move away, they can easily take cremated remains with them unlike with burial where the grave is permanent. She said: “I want to do my part to save the planet, so I am definitely having myself cremated after I die”. She then went on to emphasise that cremation can also be much less expensive compared to a traditional funeral as it allows one to eliminate many costs associated with burials which include a casket, a cemetery fee, a grave cover, a headstone and a tombstone.

An interview with the business manager of ST revealed that cremation is environmentally friendly and can be viewed as a “green option” compared to burial. He argued (as was already discussed in 5.4.2 above) that burials use strong chemicals to embalm the remains which can contaminate the environment. They take up land space and disturb the earth when digging is done in order to bury the casket. He also noted that coffins are usually coated with preservative paints and varnishes containing dangerous chemicals such as mercury that can contaminate underground water systems.

[62] Personal communication, 05/02/21

Figure 5.4 Urn cemetery
Source: Williams and Wessman, 2017.

For these reasons, he believed that cremation could be an important mechanism in the elimination of viruses, germs and bacteria, thereby helping to improve sanitary conditions for mankind. According to Decker Junior et al. (2018), as the body is composed of 75% liquid and 25% solid, cremation reduces the body to dust through intensive heat and evaporation which results in the decomposition of the body. The business manager of ST acknowledged, however, that “although cremation uses fewer resources than burial, it does have an environmental impact because it involves the burning of fossils.”[63]

Cremation poses risks through the release of contaminants into the atmosphere and the spreading of ashes on the earth. Guttmann et al. (2012) noted that cremation releases large quantities of atmospheric mercury from dental amalgams that can cause negative health effects

[63] Personal communication, 26/02/21

such as neurological, immunological, heart and reproductive disorders. Although the use of dental amalgams is not a common thing in Botswana, it can have some negatives in future if it is to be used. They also admitted that the large amounts of fossil fuels consumed during cremation contributed to global carbon emissions (Guttman, 2012). Vaporised mercury is especially hazardous to women of childbearing age because it damages the developing nervous system of the foetus and the young child (Reville, 2007). In their study, Takaoka et al. (2010)[64] expected mercury emissions from crematories to increase by 2.6-fold between 2007 and 2037.

Feagan (2007)[65] pointed out that "although cremation can be considered as less environmentally damaging than the traditional burial process, it releases greenhouse gases and vaporizes embalming chemicals". Emissions of greenhouse gases (GHGs) can have many negative effects, primarily contributing to the widely known issue of climate change. Schneider (1989) [66]explained that GHGs in the atmosphere trap infrared radiation at the earth's surface resulting in changes in climate. The Polychlorinated Dibenzo-p-dioxins (PCDDs) and Polychlorinated Dbenzofurans (PCDFs) emitted by crematoria have become a serious problem in many countries due to their toxic effect (Decker Junior et al., 2018). Furthermore, the process does not allow the body to become absorbed into the ecosystem, thereby feeding biological life (Bouverette, 2017).

The spreading of cremains can also cause pollution in the environment. According to Smith (2007), ashes contain large amounts of nutrients like phosphates which can act as fertilizers and at the same time can have negative effects on both aquatic and native ecosystems. The effects on water bodies include the increased occurrence of toxic algal, acidification and nitrate toxicity

[64]Cited in Guttman, 2012.
[65]Cited in Bouverette, 2017.
[66]Cited in Guttman, 2012.

in drinking water (Chambers et al, 2001). In native ecosystems, nitrogen enrichment can cause shifts in species composition, loss of diversity and alterations in soil chemistry (Smith et al, 1999).

Asked whether he was aware of another method called green or natural burial, the manager of ST said that he has read about it and acknowledged that it could be a good method because it does not involve the use of embalming chemicals and the clearing of land for the cemetery. Hence, it gives priority to nature above burial or the scattering of ashes. Klaassens and Groote (2010) were of a similar view that natural burials provide a solution to problems associated with the costly maintenance at conventional cemeteries and they preserve the natural habitat. Natural burials place much value on trees and the manner in which they may embody aspects of personal and cultural memory thereby facilitating and sustaining relationships beyond the grave (Klaaseens and Groote, 2010). However, although natural burial can be seen to be a solution to the problems caused by traditional burials, it does not address long-term land capacity constraints unless plots can be reused.

5.6 Concluding Summary Discussion

The study revealed traditional burial practices to be the most common method of death disposal in Ledumang and that most people are not welcoming to other forms of disposal. This is mainly because of their traditional and Christian beliefs which largely support these burial practices. Burial is important because it gives people closure by witnessing the coffin going underground, gives them a chance to be buried amongst their loved ones and also gives them hope of resurrection. Generally, newer methods of burial such as natural or green burial are unknown amongst the majority of the people in Ledumang.

However, emerging environmental concerns are challenging the traditions surrounding burial and its associated rituals. Interment burials are proving to be ecologically problematic as they involve the use of pollutants such as formaldehyde which is used for embalming which contaminate the soil and the air around cemeteries. These pollutants present a health hazard to funerary workers and to those living near the cemetery as our cemeteries are now closer to the people. There is also the threat of contamination of underground water if the cemetery is sited on top of the water table. This happens when the body decomposes and the contents in the coffin spill over into the ground and then into the ground water which is later used by people and animals. Interment burials in urban areas also require large plots of scarce land to be set aside for cemeteries because of the growing population. Of late, the issue of space is becoming increasingly pressing because of the covid-19 pandemic. People are dying in larger numbers, causing cemeteries to fill up rapidly. This is a problem because we are running out of land for use as cemeteries.

Cremation can be considered a viable and healthy option to the environment even though it is also harmful to the environment. It burns fossil fuels and releases greenhouse gases and mercury into the atmosphere. It involves the use of a simple urn or a burial shroud, both of which are biodegradable, and this method also avoids the use of embalming substances. It also allows the body to decompose much faster and has no harmful side effects. Despite this, newer methods of burial such as natural or green burial were not generally known amongst the local people.

Although current death disposal practices have advantages that seem to be beneficial to people, many of these advantages are utilitarian in kind. Firstly, they create a lucrative business for those who are in the funeral parlour business. They try to bring in new products that are attractive to clients thereby making them purchase more expensive coffins. This includes, for example, embalming the dead so that they look more natural to the mourners and making available superior quality caskets as opposed to simple coffins. This kind of business has also created employment opportunities both directly and indirectly for many people to support their families.

Current death disposal practices also respect people's religious beliefs. It was pointed out that it is much easier when addressing the loss of a loved one to follow traditional and/or religious beliefs and to conform to normative social practices than to consider new procedures. The belief that burial is the only method that can enable resurrection is a case in point. This is not surprising as the Catholic Church only officially allowed for cremation in 1960 (Slabber and Labuschaigne 2021). It was also pointed out with regard to ancestral beliefs that burying and remembering the dead have the potential to connect people to their environment and community thereby creating a sense of connection to the ancestors. Hence, graves are considered to be important as ancestors can be consulted and appeased through them.

On the other hand, current death disposal practices are perceived by some to have adversely affected the people of Ledumang in that the use of land for burials conflicts with other uses that people perceive to be more important like farming, industrial, residential and leisure activities. Consequently, they believe that cemeteries should be located in such a way that they do not negatively affect other uses for land while at the same time being accessible to the communities they are meant to serve.

The majority of the residents of Ledumang are unhappy about the geographical position of the cemetery which is located in the middle of their community surrounded by schools and residential homes. They argue that they are not free to pass by the cemetery, especially at night, because the place looks spooky and, as such, they do not feel comfortable passing there. The cemetery does not result in an efficient use of land. It has taken up the space that potentially could have been used for residential plots or even to house a development that could benefit the entire community. Those staying very close to the cemetery complained that the cemetery has affected the value of their houses so that even if they wanted to rent or sell their property, they could not get adequate value for it as its proximity to the cemetery would deter would-be tenants or buyers, thus reducing the market value of the properties. However, some studies found out to the contrary the value of property was not significantly affected by nearness to burial sites.[67] In other words, many people may no longer see graveyards as taboo. In the USA, Price (2014) notes that "proximity to a cemetery has no bearing on the value of the house and little to no leverage in getting a discounted price". However, the findings of this study do indicate that proximity to the cemetery does have bearing on the value of property.

Burials can contaminate underground water thereby threatening life forms found within that area. The process of burial also emits toxic chemicals which ultimately affect the environment. The business manager of ST agreed that the decomposing body when embalmed can contaminate the environment including the underground water as the main ingredient in embalming fluid is formaldehyde which is also known to be carcinogenic. Chemicals used to process and treat the wood for the caskets are also disadvantageous to the environment. The minerals used in coffin making can corrode and release harmful toxic substances which are transported from the graves through seepage and diffuse into the surrounding soils. When chemicals are buried in the ground, they do not just disappear. They gradually seep into the soil and underground waterways. Formaldehyde is the main source of pollution found in cemeteries. This is highly risky as Botswana relies on underground water because over 80% of the country

[67] Sodiya et al. 2021.

is a desert resulting in its climate being mostly arid to semi-arid. The developed countries are moving away from the use of formaldehyde to glutaldehyde which is less toxic. In addition to the harmful effects of chemicals on the soil and life forms living there, the burial practices in Ledumang involve the cutting down of trees which are also so important for the health of the ecosystem. Research has shown that green plants can remove, contain or render harmless many organic contaminants as heavy metals, trace elements, organic compounds and radio active compounds in soil or water. Hence it would be advisable to maintain trees in cemeteries. Other negative effects of toxic substances mentioned were air pollution, loss of biodiversity and helping the spread of COVID-19 at this particular time.

All in all, however, despite the fact that current burial practices have numerous negative consequences for the natural environment and even for humans, these factors are not well known by the residents of Ledumang and do not weigh against the perceived benefits of continuing with traditional-style burials. There are signs, however, that opinions may be slowly changing in view of a growing awareness of the benefits of alternative methods of disposing of dead bodies.

The problem of climate change has come to be on top of the global agenda in recent times. It has also come to be acknowledged that climate change is largely due to human interference with the natural environment, i.e., it is anthropogenic. This study which has concentrated on one particular cemetery in Botswana may not seem to have any great significance for the global issue of the disrespect shown to the natural world. However, this is misleading. The same principles of disrespect to the natural environment and the harm that is being caused to the land and its life forms by anthropogenic activity in Ledumang cemetery are those that are at stake on the global scale. Furthermore, although Ledumang cemetery is only one, there are millions of similar situations of cemeteries through the world which cumulatively are continuing to pose a threat to living creatures, to species and to the water and soil. After all, planet earth is the widest expression of a biotic community. As has been revealed in this study with respect to the lack of knowledge by the residents of Ledumang ward concerning the harms being done to the soil and to life forms therein by the use of traditional burial methods, it is most probable that those using burial methods elsewhere are not aware of the damage that is being caused to the biota and abiota of the natural environment. Hence, this study has implications that extend far beyond Ledumang cemetery. Elsewhere through the world, large numbers are now turning to other methods of disposing of the dead which are more earth friendly. This study has drawn attention to the dilemma that is becoming more and more a factor of the choice between traditional and alternative methods of burial. In the end, a choice has to be made between the two based on an evaluation of the advantages and disadvantages identified with each form of body disposal. Adequate knowledge must play an increasingly central part in making such decisions. In addition, ethical considerations must continue to be an indispensable dimension of such human decisions.

CHAPTER SIX: ETHICAL EVALUATION

6.1 Overview

The previous chapter presented the findings and discussion concerning the possible shift that may be taking place in the beliefs, attitudes and practices of people in Ledumang ward to the disposal of human bodies after death. They revealed that there is no major shift taking place despite the fact that the practices are harmful to the environment. It is also evident that whereas most of the key informants are receptive to other methods of body disposal, the majority of those involved in the sample interviewed are against any changes to current burial practices. This chapter focuses on the third objective which was to make an ethical evaluation of the findings. It applies the land ethic theory to arguments for and against burial practices in the Ledumang community.

6.2 The Land Ethic

The Land Ethic is central to this study because it emphasises respect for nature and for the value of the ecosystem as a whole. An ecosystem takes into account the relationships which exist between all living things and their natural environment. The holistic ecosystem includes water, soil and air, all of which are referred to as "land" by Aldo Leopold. Humans in particular have become an inseparable part of the ecosystem which means that they (we) have moral responsibilities not just to other persons but to the ecological whole of which we are a part. Leopold insisted that humans must be considered as members of the ecosystem and not separated from it. He therefore urged people to undergo personal transformation that would cause them to become stewards of the land and help prevent ecological ruin (Van Auken 2020). The land ethic has been used by other authors as an ethical evaluative framework (see Millstein 2016; Simberloff 2012). However, the land ethic has not been used to evaluate the disposal of human bodies in cemeteries. The application of this theory to Ledumang cemetery will focus on the following four central concepts: biotic community, integrity, stability, and beauty.

6.2.1 Ledumang biotic community

A biotic community, also known as a biota, is the group of organisms that live together and interact with each other within an environment or habitat. Together, the biotic community and the physical landscape (or abiotic community) make up an ecosystem. The Land Ethic is concerned about the ecosystem as a whole. In this study, Ledumang community is an ecosystem with humans, nonhuman animals, flora, and non-living physical features. The Land Ethic encourages human beings to realise that they are dependent on other members of the ecosystem for their well-being thereby acknowledging their responsibility towards both living and non-living beings present. According to Leopold, everything is connected to everything else such that he can use the image of “the land pyramid”. The depositing of foreign and toxic substances into the soil which comes from the embalming substances and coffin materials can disrupt food chains which in turn can lead to the moving out, decimation or extermination of certain species. The plants and trees growing within the cemetery where soils are contaminated absorb toxins from the seepage which can be affecting the animals that feed on them. Hence, before we think of using a piece of land as a cemetery, we must not only think about human land use but also use of that land as a habitat for non-human organisms as well.

Most people are not thinking in line with the Land Ethic because they think of human beings as the only beings endowed with intrinsic value such that other things are only instrumentally valuable for human ends. This violates the notion of the biotic community as conceived by Leopold in which humans are members of that community. Hence, in the context of Ledumang cemetery, people have a moral responsibility to care for the animals and plants in the cemetery and affected vicinity. Although the biotic pyramid shows energy flow with humans at the apex, the energy flow is cyclical. When humans die, the energy from their bodies is returned to the soil for absorption by microorganisms and plants. However, polluting substances in dead bodies shows a lack of respect for non-human life forms in the soil. The cutting down of tree and removing other forms of vegetation which help to absorb toxins from the soil also shows a lack of respect for the health of the ecosystem. Hence, the Land Ethic would consider the disposal of dead bodies in the soil in a manner which can destroy life forms to be unethical.

The definition of the Land Ethic as given by Leopold was: "A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold 1949: 224-5). Although Milstein (2016) debunks the myth that this maxim summarises the Land Ethic, it is nevertheless a central idea in the Land Ethic. It can therefore be justifiably employed to assess the ethics of body disposal among the residents of Ledumang ward.

6.2.2 Integrity

The term "integrity" connotes wholeness and the unimpaired state of the environment. Usually, integrity is juxtaposed with corruption. A person or thing has integrity if she or it is not corrupted. Leopold seems to use the term integrity in this sense (see Simberloff 2012 and Warren 2016).

Ledumang ward and the cemetery is not in a healthy state because of the negatives impacted on it by the prevailing burial method. There is evidence that our burial system can cause air pollution as confirmed by the two interviewees who complained of a bad smell coming from the direction of the cemetery at times, thereby affecting the purity of the air inhaled by humans and other life forms found within the area. In support of the above assertion, Bachelor (2004) pointed out that gases hovering over cemeteries were suspected of causing anything from tarnishing silver to deadly diseases like cholera and typhus. The interviews also revealed that interment can somehow affect underground water if the cemetery is sited on top of the water table. If it happens that it is contaminated, all the life forms within that area can be threatened. The business manager of ST alluded to the fact that a decomposing body which is sometimes embalmed, and the coffin materials themselves, produce chemicals and toxins that move through the soil and contaminate the environment including the underground water. He argued that the treated timber used to make coffins may kill termites that come in to contact with it resulting in the loss of the functional role of these species.

Integrity reminds people not to corrupt or pollute the environment by introducing foreign species or substances into the natural environment. The practice of body disposal in Ledumang cemetery involves introducing harmful chemicals such as formaldehyde and non-biodegradable synthetic materials and metals. These cause some animals to flee the area while others become decimated. Conversely, some alien species occupy the cemetery. The biotic pyramid is altered and species can be displaced in the ecosystem to which they belong.

6.2.3 Stability

It is well known that biodiversity plays a major role in the stability of an ecosystem. "Stability" refers to preserving the overall harmony and balance of the biotic community. From the findings of the study, the current death disposal method that is carried on within the community of Ledumang results in many disadvantages to the ecosystem. One of the disadvantages is the species loss. Species play an essential role in the ecosystem so that species losses can threaten the stability of the ecosystem services on which humans depend (McCann, 2000). This was mentioned by the business manager of ST when he identified loss of biodiversity as one of the effects of death disposal practices. He pointed out that the removal of trees in the cemetery tended to destroy the vegetation of the site because some trees, especially the deep rooting trees, can help decrease the water level beneath the cemetery thereby helping to contain seepage within the vicinities of a cemetery. This also helps to reduce the quantity of the seepage water that mixes with the groundwater. Areas with high levels of species are more likely to return to a stable state after a disturbance because the ecosystem has more ways to respond to a disturbance and fix problems.

Leopold understood stability, not as the absence of change. Rather, it is allowing change to happen at a slow pace to allow members of the land community to adjust, adapt and continue to flourish. However, the burial practices at Ledumang cemetery interfere with the stability of the ecosystem in question, in particular by the introduction of materials and chemicals which are harmful to life forms there. Furthermore, the large number of vehicles that enter the cemetery destroy the topsoil causing it to be easily carried away by wind and water. This affects plant growth, especially grass, thereby affecting the small animals that live and feed on the small vegetation ultimately disturbing the life support system and the equilibrium of the ecosystem. Consequently, the natural environment is deprived of its sustainability and resilience. It can no longer support the biotic community sustainably, and it becomes helpless to withstand external forces such as heavy rains and floods when they come. As Millstein (2016: 395) has pointed out, stability should result in a win-win situation for members of the biotic community by "providing good outcomes for humans, nonhumans, and the land community as a whole”. In other words, the current disposal methods tend to change the land too drastically, quickly, and completely to everyone’s detriment.

6.2.4 Beauty

In ordinary usage, beauty refers to the inherent value of the environment which can be aesthetically appreciated by humans. Inherent value is the value that human beings attribute to objects such as a rainbow on account of their beauty and unique characteristics that are appreciated. This value is attributed to an object on account of its perceived, recognised or discovered worth. However, this was not the beauty that Leopold had in mind. As seen in Chapter 3, for Leopold, what was natural was beautiful in itself. It is not for humans to alter the landscape, to introduce artificially flora or fauna to a natural habitat. Natural beauty is to be maintained by leaving natural habitats as much undisturbed as possible. Beauty refers to the sophisticated interdependence and synergies among the members of the biotic community in the ecosystem. The beauty of the ecosystem cannot be separated from the integrity and stability of the ecosystem. They are all referring to the value of the one ecosystemic reality.

6.2.5 A Holistic Perspective

Leopold’s perspective in the Land Ethic is essentially a holistic one focusing specifically on the value of the ecosystem, and planet earth is the most comprehensive ecosystem of which other ecosystems are parts. There is just one earth and all ecosystems are affected in one way or another by the global ecosystem. In a similar way, the global ecosystem is being affected by particular ecosystems. There is a part-whole dynamic at work here which involves mutual interaction. This dynamic is being played out in a small way in Ledumang cemetery. The Land Ethic draws attention to the way in which the notions of integrity, stability and beauty are essentially interrelated and interconnected in the way in which natural evolution is continually taking place. The global holistic perspective must continue to be the framework within which ethical evaluation is conducted. With specific reference to Ledumang cemetery, an adequate ethical evaluation must keep a focus on the overall health of the ecosystem involving the soil, the water, the trees and the vegetation which are all interacting with the life forms hidden there. The ecosystem is the natural reality that determines the health of living forms within it and this must involve holistic perspective.

6.3 Conclusion

The findings of the study show that the cemetery which is situated within the dwellings of people has distorted the natural beauty of the landscape. In a beautiful natural habitat, the different components are interconnected through cyclical energy flows. Energy does not escape from the system but is recycled. Beauty is expressed in the manner in which living forms continue to interact with their natural environment. Using the image of a pyramid expressing the food chain, vegetation feeds on the nutrients from the soil, herbivores feed on the plants, omnivores and carnivores feed on the herbivores, and the soil absorbs energy from the excretion of the carnivores once they die. There is a beauty and harmony that has resulted from the interaction of different life forms over long periods of time in the ecosystem but which is being destroyed by anthropogenic artificial interventions in creating cemeteries. Vegetation is cleared, roads are developed, soils are dug up and chemicals and foreign materials such as treated wood, metals, plastics, embalming chemicals, concrete, and clothing of the dead are buried in graves. The removal of trees, especially the deep rooting trees, which help to decrease the water level beneath the cemetery, can facilitate an increase in seepage within the vicinities of a cemetery in addition to increasing the quantity of the seepage water that mixes with the groundwater. As trees and vegetation also are habitats and food for many animal species, their removal also impacts negatively on the harmony of the natural environment which harbours small insects which are preyed on by lizards, chameleons, and birds that are in turn preyed on by snakes and other higher predators in the ecosystem.

Whereas a well-kept cemetery can create an attractive atmosphere, unless this is done with great care and sensitivity for the life forms that are so essential for the natural harmony and balance of the ecosystem, the beauty that is reflected in the interaction of diverse parts of the natural ecosystem is disrupted, if not destroyed. Ledumang cemetery, like many other cemeteries, results in creating an artificial external beauty while at the same time destroying in various ways the harmony and beauty of the natural ecosystem. Other more environment friendly forms of disposing of the dead, such as cremation, aquamation, green burial and promessa are becoming increasingly common in many parts of the world. However, lack of adequate knowledge with respect to the harm being done to the natural environment as in Ledumang ward remains a current problem.

The prevailing beliefs, attitudes and practices among residents of Ledumang are not in line with the Land Ethic. The Land Ethic holds that land should not be seen as property for human use only. Even those who oppose the use of the land for the cemetery believe it should have been used for real estate or other commercial uses. The Land Ethic has drawn attention to the need for greater focus on ecosystemic value, a value that is identified with a holistic perspective as distinct from a focus on individual things in the natural environment. It focuses on the biotic community of which humans are an essential part with responsibility for care of

the overall Ledumang cemetery. The concept of the biotic community exposes humans as being anthropocentric, as colonisers of natural habitats rather than as “plain members and citizens” of the land-community interconnected with other nonhuman elements in complicated energetic relationships.

This chapter has applied Leopold's Land Ethic to make an ethical evaluation of burial practices in Ledumang cemetery. Using his definition of environmental ethics which focuses on preserving the integrity, stability and beauty of the natural environment, it has been found that these ethical principles are not being honoured in Ledumang cemetery despite the fact that there are many utilitarian advantages in current burial practices. Furthermore, lack of scientific knowledge among the residents of Ledumang ward is contributing to the harm being caused to the land and the life forms living in it as a result of toxic substances in particular emerging from current burial practices.

As already referred to in Chapter 3 on the theoretical framework, Leopold's Land Ethic should not be understood to ignore the needs of humans in the use of land. Just before stating his definition of environmental ethics, he writes: "Examine each question in terms of what is ethically and aesthetically right as well as what is economically expedient." Leopold acknowledges the dilemma that can arise between respecting the natural environment and the needs of humans. His point is that there needs to be a proper balance in decisions which will protect the natural aesthetic beauty of the environment along with satisfying human needs. However, he strongly believes that the needs of humans have tended to dominate the scene in a utilitarian economic fashion. Hence, if the natural environment has to be interfered with, it should be done in a manner which is least harmful to the natural environment and which respects its life forms as much as possible. Ledumang cemetery is a case in point.

CHAPTER SEVEN: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Summary

Disposal of the dead is a universal and important aspect of human existence which cuts across all religions and cultures. Traditionally in Africa, including in Botswana, interment was the only known form of death disposal dating back from the Stone Age period. Interment is very important because as the body decomposes, nutrients are added to the ground making it fertile and able to sustain other living organisms found within that area. However, even though interment is the common method of body disposal, changes brought about by globalization and modernization in mortuary and burial practices have raised environmental concerns and sustainability issues.

Most people take it for granted that the disposal of the dead is sacred and can never be associated with negative things. Many of the factors that negatively affect the environment take effect behind the scenes so that they are not evident to the average person in the context of attending a funeral. Increasing awareness of the negative effects of our burial activities can result in conscious changes in how we carry out such activities. It is also important to have a better understanding of alternative disposal choices and their environmental consequences. Once people have the knowledge to make informed choices, innovative solutions that challenge traditional practices associated with disposal may be considered. Although funeral practices have commonalities, they also vary greatly across time, space, and cultures. Recently, there has been some focus on environmental impacts of different types of body disposal methods with some social movements emerging towards more ecological ways of disposing of the bodies of our dead. This study examined whether there were any signs of changing from traditional burial methods in Ledumang ward of Botswana.

7.2 Conclusion on findings

The findings of the study revealed that burial is still the most common method of death disposal practiced in Ledumang and that most people are not welcoming to other forms of disposal of the dead. This is mainly because of their Christian beliefs as a majority of the people in Botswana are Christians, although with some allegiance to African traditional beliefs and practices as well. One of the reasons people are still holding on to burial as a form of body disposal is because it gives the dead a permanent resting place where the bereaved can always visit the site when the need arises. This allows the bereaved to feel closer and more connected to their loved ones.

However, interment burials are proving to be harmful to the natural abiotic environment including all life forms found therein where burials take place. These harmful effects come mainly from the treatment of the dead through embalming. Though embalming is an effective way to preserve the body for viewing during a funeral, the main fluid used is made up of formaldehyde which is toxic and carcinogenic. The chemicals used can also contaminate underground water if the cemetery is sited on top of the water table thereby threatening the animals and people depending on the water. Other negative effects of toxic substances mentioned were air pollution through bad smells, helping the spread of COVID – 19 at this particular time and loss of biodiversity and deforestation. Cemeteries tend to destroy the vegetation of the site resulting in deforestation because trees have to be removed and thereby destroying the environment and the many life forms living there. Furthermore, cemeteries use up land which is already scarce, especially in the urban areas. While it is a good thing to honour the dead with space of their own, it is not sustainable to continue allowing everyone who dies to have their own plot of land. The problem with traditional cemeteries is that little can be done with the land once people have been buried there. Many complain that the cemetery has taken up space that could have been given to them for residential plots or for other developments in the community.

Despite the fact that the method of burial is harmful to the environment, people are still not receptive to other methods of disposal since burial is the only method generally known amongst the local people. This is due to the fact that there has never been any sensitisation of any form on how the current method may be harmful to the environment. The data has revealed that the residents of Ledumang ward are not aware of alternative methods of disposing of dead bodies that are more eco-friendly such as cremation, aquamation, green burial and promessa. Furthermore, most people are not aware of the harm that burial methods have on the soil and on the life forms there. Although this study has concentrated on one particular cemetery in Botswana, it has implications that extend far beyond Ledumang cemetery as people using similar methods in other countries both here in Africa and elsewhere may not be aware of how destructive these methods can be to the natural environment.

7.3 Conclusion on ethical evaluation

The ethical evaluation of this study concluded that the method of burial in Ledumang cemetery is not ethical in view of the lack of respect shown to the overall ecosystem in which it is located. In terms of the Land Ethic principles of integrity, stability and beauty, there is a failure to pay adequate attention to the manner in which the method of burial is impacting on the soil and the life forms within it. Burials are considered to be for the benefit of humans only without due consideration being given to the natural ecosystem in which they take place. Although the coffin industry is undoubtedly a successful and profitable industry, and may give employment to some, the use of toxic chemicals in embalming and the use of toxic metals in coffins is unethical with respect to their effects on the natural environment.

The traditional form of burial which is largely supported by Christian beliefs has continued to be the standard practice. However, the data has shown that most people were not aware of alternative forms of burial which are more eco-friendly. Furthermore, residents did not show any awareness of the fact that burial plots are part of a wider holistic ecosystem for which they should be responsible. Given this lack of knowledge, the residents of Ledumang are not put in the position of having to choose between the current method of burial and alternative methods. There are already signs, though, that with advances in knowledge, alternative methods may replace the present method for various utilitarian reasons in terms of cost and convenience. However, from the more deontological perspective of the Land Ethic, alternative methods of disposing of the dead that are more eco-friendly need to be considered in terms of the value of the ecosystem itself. All in all, ethical considerations must continue to be an indispensable dimension of such human decisions concerning disposal of dead bodies.

7.4 Recommendations

1. The government of Botswana needs to conduct a review of current burial practices and bring them in line with environmental, waste management and sanitation policies.
2. Gaborone City Council needs to sensitize the community of Gaborone on the negative effects of the burial methods on the environment, humans and other living things.
3. The government needs to raise the level of awareness among the people of Botswana on the negative environmental impacts of current burial practices.

4. The government needs to raise awareness about alternative methods of disposing of the dead that are more eco-friendly.

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APPENDICES

Appendix I: In-depth interview schedule: Householders and community members

1. What is your understanding of death disposal?
2. How do you dispose your dead in your community?
3. Where do you dispose your dead in your community?
4. Who is responsible for choosing the way in which a loved one is disposed?
5. Do you think this is the best way of disposing the dead?
6. Why do you think that way?
7. What cultural beliefs do you have regarding disposal of the dead?
8. Do you know of anyone who has ever opted for a different disposal method?
9. Which one did they opt for?
10. What are the other ways of death disposal methods that you are aware of?
11. What is your attitude towards them?
12. What do you think are the effects of your current death disposal practices on :
    a) Human health
    b) Natural environment
13. How do you think the current death disposal practices affect the
    a) the pleasant appearance of cemeteries;
    b) the sustainability (lifespan) of cemeteries;
    c) the overall unity of different life forms in cemeteries interacting with each another.
14. What are your suggestions on improving the current death disposal practices?

Appendix II: In-depth interview schedule: Funeral Parlour

1. How do you prepare the body for burial?
2. How do you preserve the body before burial?
3. Do you do embalming in your work place?
4. How often do you do the procedure?
5. What kind of substance is it made of?
6. Are there any regulations to the use of this substance?
7. What are the effects of embalming liquid (substance) on
    a) Humans
    b) Natural environment (e.g., air, cemeteries, etc.)
8. How do you protect yourself or your employees against these effects?
9. What changes can you suggest concerning your work?

Appendix III: In-depth interview schedule: Members of the clergy

1. What is the doctrinal position of your church on disposal of the dead?
2. What is your view regarding the church's position?
3. What is the nature of the rituals you perform in church and at the burial site with respect to the disposal of bodies?
4. What is the nature of your preaching on these issues?
5. Is payment expected from relatives of the dead?
6. What are some of the effects that this disposal practice may have?
7. What are the other methods of death disposal that you are aware of?
8. What is the position of the church about those methods?
9. What is your feeling about those methods?
10. Should Christians be allowed to choose other methods of disposal other than burial?
11. Give reasons for your answer
12. To what extent can you say that people's attitudes are changing towards burial?
13. Do you think finances may be playing a part in changing attitudes to death disposal?
14. What could be the causes of this shift?

Appendix IV: In-depth interview schedule: Coffin manufacturers

1. What kind of materials do you use to make coffins?
2. Where do you get them from?
3. What challenges do you face in procuring these materials?
4. How do you think your business (coffin making) is affecting the environment?
5. How do you think it affects humans?
6. Are there any regulations with regards to coffin making?
7. Who is the regulating body?
8. How prepared are you for changing attitudes towards death disposal in terms of people requesting cremation?
9. Do you think finances may be playing a part in changing attitudes to death disposal?

Appendix V: In-depth interview schedule: Environmentalist

1. What is your current position in the organization?
2. What is the role of your organization in death disposal?
3. What are the challenges of the current death disposal?
4. What measures are you using in raising awareness of these challenges to the public?
5. Is your organization aware of the materials used in coffin manufacturing?
6. How harmful are they to the environment?
7. What do you know about the embalming procedure?
8. What are the effects of the embalming liquid on the environment?
9. Are there any regulations to the use of this liquid?
10. What other methods of death disposal is your organization aware of?
11. Has your organization ever thought of any of those as an alternative to environmental sustainability?
12. If yes, how far have you gone with it?
13. If no, why?
14. How does the current death disposal affect the

    (a) the pleasant appearance of cemeteries;

    (b) the sustainability (lifespan) of cemeteries;

    (c) the overall unity of different life forms in cemeteries interacting with each another.

Appendix VI: In-depth interview schedule: GCC

1. What is your position in the department?
2. What is the role of your organization in death disposal?
3. What do you think of the current death disposal practices?
4. How does the current death disposal affect the

   the pleasant appearance of cemeteries;

   the sustainability (lifespan) of cemeteries;

   the overall unity of different life forms in cemeteries interacting with each another.
5. Which other methods of death disposal are you aware of as an organization?
6. Which alternative methods can you consider as an organization
7. Why those particular ones?
8. How does the council manage the facility?

Appendix VII: In-depth interview schedule: VDC

1. How long have you been staying in Ledumang?
2. How long have you been in the VDC?
3. How do you dispose your dead in the community?
4. Where do you dispose them?
5. Is it only for the community members?
6. If not, who else uses the facility?
7. How has the facility affected the following:
    a) Beauty of the natural environment
    b) Developments of your community
8. Who is responsible for managing the facility?
9. Does the government involve you in the decision making regarding your community?
10. What is your opinion on sustainable death disposal practices?

Appendix VIII: In-depth interview schedule: Memorial Park

1. What services does your company provide?
2. Is it only to the community members?
3. If not, who else uses the facility?
4. What motivated your company to come up with such a facility?
5. How did your company acquire this land?
6. Do you charge for the service you offer?
7. What is the response of the public to your facility?
8. What attracts people to utilize you service?
9. Is your company aware of other methods of death disposal?
10. If yes, which ones?
11. Are there any considerations of alternative methods of death disposal?
12. If yes, which ones?
13. Why those particular ones?
14. If no, why?
15. Are there any disadvantages to the management of the facilities?
16. If any, what are they?
17. How can they be addressed?

Appendix IX: In-depth interview schedule: The Chief

1. What cultural beliefs do you have regarding disposal of the dead?
2. How do you perceive the current death disposal methods?
3. What benefits do you see in using the current methods?
4. What are the effects on the natural environment?
5. What are the effects on humans?
6. What other methods of death disposal are you aware of?
7. What do you think of them?
8. What are your suggestions on what should be done to save the environment for future generations?