

AN ECO-THEOLOGICAL ASSESSMENT FOR THE
SUSTAINABILITY OF CREATION: THE CASE OF THE
COPPERBELT PROVINCE IN ZAMBIA

BY

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DECLARATION

I declare that the dissertation which I hereby submit for the degree Philosophiae Doctor at the University of Pretoria, is my own work unless where acknowledged, and has not been previously submitted by me for a degree at another university.

Signed

Date

Place

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ABSTRACT

The dominium command in Genesis 1:28 (Gn 2:15) is the point of departure for an eco-theological assessment for the sustainability of creation, in the case of Kitwe of the Copperbelt Province in Zambia. *ILamba* is a territory of an indigenous community, whose wild life was endowed with various forests, marine and animal species.

The scenario has changed following the discovery of minerals, particularly copper, after which the region was named the Copperbelt. The copper mining industry, as an extractive undertaking has its impact on biodiversity and nature. The reconstruction of the indigenous community's forest, wild life, their concept of God, their lifestyle before the industrialisation of the territory, their cultural cosmology, a consideration of the global ecological crisis debate, and a theological framework are used to assess the impact of the industry from an eco-theological perspective. Pope Francis in his most recent encyclical letter argues that "neglecting to monitor the harm done to nature and the environmental impact of our decisions is only the most striking sign of a disregard for the message contained in the structures of nature itself" (Francis 2015: 68). The assessment therefore aims at rediscovering the human responsibility pertaining to creation. Moltmann argues that "Interpreting the world as God's creation means precisely *not* viewing it as the world of human beings, and taking possession of it accordingly. If the world is God's creation, then it remains his property and cannot be claimed by men and women. It can only be accepted as a loan and administered as a trust." (Moltmann 1993:30) The copper mining industry's activities in the Copperbelt therefore have to be assessed in the light of scripture

Through eco-hermeneutics, relevant texts of scripture have been explored to understand the desire of the creator for the created, including human beings. This is done in view of Pope Francis' statement who further argues that "...sister earth, along with all the abandoned of our world...cry out, pleading that we take another course. Never have we so hurt and mistreated our common home as we have in the last two hundred years. Yet we are called to be instruments of God our father, so that our planet might be what he desired when He created it and correspond with his plan for peace, beauty and fullness." (Francis 2015:33)

The situation in relation to Pope Francis' concern as indicated above is explored with regard to the Copperbelt. A theological framework serves as praxis for a desired

ecological outlook, taking into consideration the role of scripture, the Church, Government, investors and individual citizens in mitigating and resolving the ecological crisis locally and globally. The crisis, we maintain is mostly due to human activities such as the effects of copper mining, carbon emission and the use of chemicals. Obedience to scripture is the basis for the change of the human mind-set, particularly in Zambia's Copperbelt.

Among the findings of the dissertation are: Disobedience to God's law, misinterpretation of scripture, depletion of species, loss of cultural heritage, disregard of policies, particularly by investors and of course materialism or greed in its barest form.

Further research is recommended on issues of ecological, social and economic effects, the extent of damage to ecosystems in the Copperbelt, and how best to reconstruct them. Sustainability for continued desired status for the sake of the species, nature and future generation is the quest of the study.

LIST OF TERMS AND ABBREVIATIONS

- Akasuba* – the sun
- Bakaluwe* – the hunters' spirit
- Ikwikwi* – Bird of bad omen
- Ilamba* – Land (territory) of the *Lamba* people
- Itabwa* -- Land (territory) of the *Tabwa* people
- Lamba* – The indigenous tribe of the Copperbelt province
- Lala* - An indigenous neighbouring tribe in the North-Eastern region of the Copperbelt.
- Lenje* - An indigenous neighbouring tribe in the South-East of the Copperbelt Province
- Lesa* - The name of God in *Lamba*'s language
- Luchyele ng'ang'a* – Name of a mysterious being (god) whose foot print is believed to have remained on a rock near the *Lamba* land.
- Miombo* - (plural) Swahili word for *Brachystegia (longifolia)*, a genus of tree comprising a large number of species found in tropical and subtropical grasslands, savannas and shrub lands.
- Mukula* tree – An indigenous natural tree species (Botanic name: *Pterocarpus chrysothrix*)
- Ecology - The study of ecosystems or life connections.
- Eco-justice - fair treatment of ecosystem, nature and countries by others
- Environment – surrounding, inclusive of all
- Hermeneutics– The science of interpretation, particularly for religious scripture
- ACT - Action by Churches Together
- ADB –African Development Bank
- AMD – Acid Mine Drainage
- BCE - Before Common Era
- BSA co – British South Africa Company

CCZ	- Council of Churches in Zambia
CDC	-Commonwealth Development Corporation
CE	- Common Era
CMMI	– Christian Missionaries in many Lands
CMS	– Church Missionary Society
COP	– Conference of Parties
DR	-Democratic Republic (of Congo)
EIA	- Environmental Impact Assessment
EFZ	– Evangelical Fellowship of Zambia
ERD	– Export Rehabilitation Diversification on projects
FOCSA	– Fellowship of Churches in Southern Africa
IFC	- International Finance Corporation
KCM	– Konkola Copper Mines
LMS	- London Missionary Society
MCM	– Mopani Copper Mines
MMD	– Movement for Multi-Party Democracy
MoU	– Memorandum of Understanding
MUZ	– Mine Workers Union Zambia
NCCM	– Nchanga Consolidated Copper Mines
NDP	– National Development Plan
NLT	– New Living Translation
PEMS	– Paris Evangelical Mission Society
PF	- Patriotic Front
PLM	- Pregnant Leach Solution
REDD+	– Reduced Emissions from Deforestation and Forest Degradation
RSV	-Revised Standard Version
RCM	– Roan Copper Mines

SAFCE	– Southern African Faith Communities Environmental Institute
SAP	- Structured Advancement Programme
SOB	– South Ore Body: Copper ore beneath earth surface located in the southern part of Kitwe city.
SOE	– State of the Environment
UCCAR	- United Church of Central Africa in Rhodesia
UCZ	– United Church of Zambia (The)
UMCA	– Universities Mission to Central Africa
UNFC	- United Nations Framework Convention on Climate Change
UNIP	- United National Independence Party
USAID	– United States Agency for International Development
WHO	- World Health Organisation
ZCCM	– Zambia Consolidated Copper Mines
ZCI	- Zambia Copper Investment
ZEC	- Zambia Episcopal Conference
ZEMA	– Zambia Environmental Development Agency
ZESCO	– Zambia Electricity Supply Corporation

CHAPTER ONE

INTRODUCTION

1.1 Preliminary remarks

The research is entitled “An Eco-Theological Assessment for the sustainability of creation: The case of the Copperbelt province in Zambia” and focuses on the impact of copper mining on the environment and nature, judged from an eco-hermeneutical perspective. The application of the dominium command to “subdue the earth and rule it...” (Genesis 1:28) is the motivation for such an assessment with the assertion that the misinterpretation of this verse and others are responsible for the indiscriminate use of land and natural resources by humans. Buitendag (1986) argues that the ecological crisis is not the result of obedience to the dominium command, but the history of disobedience to scripture.

Dean-Drummond refers to Ecology as, “the study of relationships of things, generally life forms to their surroundings, and usually including other things or life forms” (Deane-Drummond 2011:21). It follows that while studies of the environment usually refer to human habitat and what benefits humans, Ecology considers interdependence of both the living and the non-living in the natural world. Today both ecological and environmental questions have risen more frequently as a result of the relationship of humans to the natural world and its habitat.

Eco-theology in itself deals with the environment from responsible scriptural engagement, or theology of creation that opens up this research to assess “what human beings do and the world in which they do it” (Deane-Drummond 211:21), in this case the copper mining industry in the ,Copper belt Zambia. While mineral extraction, such as copper mining and processing brings about human development economically, the methods of mining and processing the minerals must take cognisance of sustaining nature and other life forms, besides human beings. In fact humans would sustain themselves by sustaining other creatures because they (humans) are dependent on all that exists around them. The ecological principles of interconnectedness, mutual custodianship, sustainability and that of purpose for all components of creation must be upheld.

Moltmann argues that “nature must no longer be viewed as unclaimed Property” (Moltmann 1983:3.) That is to say, nature, including human beings belongs to God the creator. None of God’s creatures should dominate nor mismanage others without being accountable to God, and to those who rule countries on behalf of God. It therefore becomes imperative that the ecological crisis the globe is experiencing should be responded to by all human communities.

Measures should be taken to prevent and mitigate respiratory diseases due to irresponsible emission of sulphur dioxide, Malaria due to pits left open for mosquito breeding, acidity of soil due to irresponsible spillage of sulphuric acid through tailings (not properly disposed of) from leaching plants; resulting in infertility of land for most crops for subsistence farming, pollution of water and air, misplacement of persons and extinction of species both on land and in water. A situation if not mitigated, would negatively affect humans themselves permanently and irrevocably.

The focus of the study is the impact of copper mining and processing methods in Kitwe in particular and the Copperbelt in general on the human environment and the natural world. A theological approach within the concept of the theology of creation is used on the whole, besides the methodology which is explained later. The research context is faced with an ecological crisis, and as Moltmann suggests, “In this sense, a theological doctrine of creation in our own time is guided by the will to find a way into the Community of creation” (Moltmann 1983:4).

Humans, according to this statement by Moltmann must desire to explore a better way to live with the rest of creation in harmony and interdependence. Human beings with a sense to reason and appreciate other creatures must articulate the means to relate to the rest of creation in a sustainable way. This is in view of the fact that the future of creation including all life entirely depends on the sustainability of natural resources such as land, water sources, vegetation on land, aquatic life in rivers and lakes in the case of Zambia, wild life and of course a favourable climate. Failure by human beings to regard creation as a community to which they (humans) belong is a proclamation of doom for the entire creation. Sustainability in this case we assert is the ability of natural resources to provide both for the present and future generations. (Rolston III. 2012:6)

1.2 The Research problem

Thus far no work has been carried out from an eco-theological perspective on the impact of copper mining and processing in Kitwe on the environment, inhabitants, nature and the general biodiversity. The failure by humans to obey scripture to care for creation (Genesis 2:15) necessitates research to be carried out from an eco-theological perspective. Deane – Drummond defines eco - theology as “the reflection on different facets of theology in as much as they take their bearing from cultural concerns, the environment and humanity’s relationship with the natural world” (Deane-Drummond 2008:10.) This is to say, that humans and the rest of creation will be viewed as a community bearing on the fact that all inhabitants of the cosmos, humans included depend on each other because they share a lot in terms of life and environmental sustenance. Particular attention has to be paid to the situation prevailing in the Copperbelt of Zambia and indigenous cultural setting.

It is important that the people of Zambia, the government and mining companies become aware of the harm already inflicted upon the environment in view of Biblical demand for the sustainability of nature. In a Community of creation, humans have a task to care for the rest, particularly that humanity depends on other creatures to survive and develop their livelihood.

The fact that the Zambian Constitution has a declaration in its preamble stating that “we the people of Zambia...DECLARE the Republic a Christian Nation...” (Constitution of the Republic of Zambia 1996:7) makes it imperative for the Zambian community to be more aware of the responsibility of caring for creation. Other means of sensitising people on the environment have been carried out from social-economic perspectives. However, anthropocentrism has dominated most approaches thereby giving humans the choice to mine for copper with impunity in the name of development. Consumption demand for copper in industrialised countries continues to grow while the methods of mining and processing the mineral have negatively impacted on the land, biodiversity and humans, particularly in Kitwe.

The theological view is an approach meant to re-direct the attention of Zambians’ on the industry from a Christian perspective in order to liberate their future by sustaining natural resources, biodiversity and creation in general in and around the copper mining towns.

1.3 Hypothesis

Disobedience to scripture has led to an ecological crisis in Zambia, and the Copperbelt in particular. This is due to the misunderstanding of Genesis 1:28, self-centredness of humans, over consumption of resources, materialism, lack of educational capacities and imperialistic investment approaches by multinational corporations. These issues are addressed so that a correct understanding of creation narratives would bring about change in attitude towards nature. Sustainability of creation on the Copperbelt in particular, and Zambia in general will be achieved and so contribute to the global efforts of "...building a common home" (Francis 2015:13) as Pope Francis puts it.

The argument is that economic prospects and developmental projects often tend to ignore the existence and sustainability of life in diversity and the natural world. Leonardo Boff in his book "*Cry of the earth, Cry of the people*" rightly observes that "when development and environment conservation are in tension, development is usually chosen and the cost paid is environmental deterioration" (Boff 1997:5). It is such the effect of ecological concern that we address it from a theological perspective by assessing the impact of the copper mining and processing industry on humans, their environment and nature. Our contention is that an awareness regarding both the harm and the human Biblical vocation towards responsible engagement with nature will create a better creation.

The basic argument we wish to put here is to propose that there are available options which can assist in mitigating the negative effects of the current mining and copper processing methods. African indigenous mythology and African Christology are some of the possible approaches used in this study to appreciate the interrelationship of creation.

1.4 Research objectives

- * To investigate and analyse the impact on biodiversity and nature of the copper mining and processing methods applied by companies in Kitwe in particular, and the Copperbelt Province in general.

- * To evaluate the ethical concepts of mining approaches applied by companies in terms of eco – justice, and their role (companies) in mitigating the effects on nature.
- * To apply an ecological hermeneutics on Biblical texts with an ecological concern and teaching.
- * To reconstruct the image of the indigenous people of the Copperbelt and their land before the mining industry.
- * To examine the laws currently in force on land, minerals, mines and environmental management and how mining companies comply with the enforcement of such laws.
- * To create awareness on the use of natural resources for the sustainability and resilience of creation from an eco-theological perspective

1.5 Methodology

In this research, the following methodology will be applied in order to achieve the goal:

1.5.1 Global ecological crisis Debate

An assessment of current debates regarding the global ecological crisis is carried out. A brief analysis of the world view is given in contrast with the contextual situation of Zambia, and the Copperbelt in particular. A qualitative approach is applied to a larger extent by use of relevant literature. For the Zambian Copperbelt context, Environmental Impact Assessment Reports and the Zambian law on land, environmental management and the mine and minerals development laws are used to assess compliance and effectiveness of such policies. Few analytical instances are subjected to quantitative approach in order to specify the information.

1.5.2 Cultural Cosmology of the *Lamba* people

The *Lamba* people of the Copperbelt have lived in the area since the late eighteenth (18th) century. An investigation into the original state of the land, its people and their cosmology is carried out in order to reconstruct their way of life economically, religiously and otherwise before industrialisation of the area by mining companies.

Both oral tradition and literature study is employed in achieving the reconstruction of the indigenous life style of the *Lamba* people and their land. African indigenous mythology is used to a greater extent in order to explain the concepts of God, humans and nature among the *Lamba* people of the Copperbelt in Zambia.

Deane-Drummond asserts that like Asians, Africans “have cultures and religions with strong wisdom traditions that use natural symbols such as the plant and the gardener, seasonal cycles, and the stream in their teachings about natural wisdom and human nature.” and that “Jesus as *Sophia* (wisdom) appears in the wisdom traditions of various cultural contexts and is relevant cross-culturally for people struggling to find a new language to speak about Christ” (Deane-Drummond and Bedford-Strohm 2011:127). That is to say, that the wisdom expressed in African myths and poetry is identified with Jesus as wisdom, particularly about creation. However, care is taken in as far as enculturation of the gospel and imaging Jesus contextually is concerned.

This approach does not leave out the traditional religious aspect of the *Lamba* people, the indigenous tribe who has lived in the Copperbelt for a long time.

1.5.3 Ecological Hermeneutics

Ecological hermeneutics is carried out in order to reconstruct the Christian belief, which uses the Bible in part as partially responsible for “a long anthropocentric, patriarchal and endocentric approach to reading the text that has devalued the earth and that continues to influence the way we read text; to declare before reading text, that we are members of a human community...” (Habel 2008:1). A great deal of exploration of scripture is engaged right from the dominium command in Genesis (1:28) to the eschatological perspective of creation in the book of Revelations. This approach will also serve as mediation for those who accuse the Christian faith and its scripture for misuse of natural resources with regard to the concern on consumption by human communities, which ends up in degradation of land, depletion of species and pollution of the environment beyond the limits of life sustenance.

1.5.4 Focus group discussions

The negatively affected areas of the mining industry are inhabited by humans who feel the pinch of improper copper mining and processing methods. Focus group discussions with members of the local residents in mining townships were held in three different locations of two mining cities namely, Kitwe and Mufulira on 20th and 21st July 2012 respectively. Among the issues discussed with focus groups were air and water pollution, environmental degradation, land pollution and their negative effects on humans, livestock, vegetation, and agricultural activities and the social economic outlook of the people.

These groups consisted of men and women who have since retired from working in the mines, those still working for the mines and those who are resident in mining cities, but not necessarily working for the mines. The discussions are to a large extent unstructured and based on the experience of discussants.

1.5.5 Direct observation and visits

We undertook visits on 29th November, 2013 to mining operation areas such as the concentrator plant, the leach plant and dump sites to assess and collect first-hand information which has been translated into the cause for environmental degradation and lack of sustainability; depending on the kind of methods mining companies have been using in extracting, transportation and processing the mineral. The empirical data has been collected for isolated examples in collaboration with the world view on ecological concerns, and we agree with Kemp when he says that “a significant problem in areas that have a long history of resource extraction is the presence of old mines, quarries and waste dumps left by companies that ceased operations before the passage of current environmental regulations” (Kemp 2004:180)

That is to say, that although the current mine owners are trying to comply with the law with regard to mineral extraction and processing, the damage has been caused already by former mine owners to the extent that it requires human effort and will in alleviating the degradation of land, vegetation, non-human and human life. However, in most cases huge sums of money are required to lessening the impact. The reality is yet to be exposed in the case of the Copperbelt of Zambia and Kitwe city in particular.

1.5.6 An Eco-Theological framework

The last approach used in achieving the goal of obedience of scripture and change of attitude towards nature for the sustainability of creation on the Copperbelt is the construction of an eco-theological and ethical framework. Proposals and suggestions of how the Christian communities can work with government on the issue of sustainability are given in the view of Biblical hermeneutics, cultural religious mythologies and state policies on land, minerals, mines, water and environmental management. Co-operate social responsibility of multinational corporations in the areas of their operation is emphasised as a way of enforcing obedience to scripture by all the stake holders. The role of the church in the Zambian context in fulfilling the requirements of scripture is discussed at length in the framework, with emphasis on its responsibility to proclaim the Good News to all creation, according to the gospel of Mark where Jesus said “Go into the entire world and proclaim the Good News to the whole creation.” (RSV) (Mk 16:15). The church has a responsibility from its institutional, servant hood, mystical, herald and sacramental perspective for resolving the ecological crisis. Further, the church has lessons to learn and a confession to make based on the Accra Confession as required and agreed by the Reformed member churches of the World Council of Churches (WCC) (Accra Confession 2004:2-5). The framework also covers issues of scramble for land and its natural resources, perpetual succession of land and Leviticus 25:23-34, the sabbatical year of the land and environmental justice.

1.6 Contribution

The dissertation is a contribution to the theology of creation pertaining in particular to the *Lamba* people. It is a mitigating factor in the management of the ecological crisis in Zambia and beyond. Particularly in areas of mineral extraction in which we provide for obedience to scripture which should become central in the management of resources as opposed to an anthropocentric approach in its consumerism tendencies and what humans can benefit from nature. The Zambian Constitution declares Zambia a Christian

Country and it is therefore imperative for the government to take seriously cognisance of Biblical demands.

The study is also a contribution to public theology and ecological debates, promoting care for the biodiversity habitat and the rest of creation. Students, scholars, church leaders, the Christian community and civic leaders will benefit from the study because it cuts across political, denominational, religious and cultural boundaries as far as its contribution is concerned.

1.7 Limitation

The dissertation draws inspiration from the failure to obey scripture, resulting in global debates on climate change due to global warming and environmental degradation. However, it is limited to the theologian's perspective of the Zambian context, particularly with regard to the Copperbelt mines in Kitwe.

Issues of scientific justification, quantification and analyses are left for scientific (natural sciences) researchers. Pollutants, such as effluents from the manufacturing industry other than copper mines are not emphasised in the research because the work focuses on copper mining and processing methods and their effects on the environment, humans, biodiversity and nature in general from a theological perspective.

1.8. Outline Of The Dissertation.

1.8.1. Chapter one: Introduction

The chapter is an introductory part of the study stating the motivation for the research, the research problem, the hypothesis, an outline of objectives, methodology and contribution of the work to theology of creation and the care for nature. The chapter specifies the limitation of the study.

1.8.2. Chapter two: The land and its people

Chapter two is a reconstruction of the area of study. It locates the Copperbelt in Zambia giving some detail of the vegetation, physical features of the area known as *Ilampa* or the land of the *Lamba* people and stresses their origins, their belief in God, cosmology, traditions and lifestyle. It further provides an overview of the discovery of copper, early explorations, settlements, evangelisation of the area and the effects of copper mining industry on the indigenous community.

1.8.3 Chapter three: The copper mining industry in Zambia

The country's brief historical and geographical information; and the copper mining industry in Zambia are described in this chapter. It covers copper processing from the shafts and Open Pits through the concentrator, leaching and smelting. The effects of such processes on nature and biodiversity are highlighted at each stage. The chapter ends with an overview of the policies governing land, mines and minerals development; and the environment in general. Compliance with the law is assessed within the chapter.

1.8.4. Chapter Four: Ecological Hermeneutics

We have used the Earth Bible Team's approach in assessing scripture in the light of the need and command to care for the environment. Scripture has been assessed from an eco-hermeneutic perspective by use of relevant passages in the law books (*Torah*), the Prophets, the Wisdom literature, the gospels, the book of Acts, Pauline epistles and the Apocalypse (Revelation).

1.8.5. Chapter Five: An Eco-Theological Framework for the Sustainability of Creation in the Copperbelt

The framework serves as climax for the argument which culminates into praxis for sustainable copper mining in Zambia. The role of cultural mythologies in resolving the ecological crisis from the *Lamba* people's context is applied. The role of the corporate world, the church, the government and the general citizenry in mitigating and resolving the ecological crisis is spelt out.

1.8.6 Chapter Six: Findings and Recommendations

This is the final chapter of the dissertation where findings and recommendations of the study are outlined. Findings include loss of cultural heritage, the contribution of foreign investors to the crisis, misinterpretation of scripture, disobedience to scripture, extinction of species, and that God is the crown of creation. The study ends with recommendations for further research.

CHAPTER TWO

THE LAND AND ITS PEOPLE

2.1. Introduction.

This chapter gives details of the land and the people who live on the Copperbelt of Zambia. These are the people who are directly affected by the copper mining industries operating in the area. An eco-theological assessment has been carried out with regard to the impact of the mining industry both to them and the environment.

2.2. Location of the Copperbelt (*Lamba* Land)

Today's Copperbelt Province, as it is known in Zambian stretches over an area of about 25,000 square miles partly in Congo DR, but with the larger portion in Zambia. The territory is known as *Ilamba* by locals, while others, especially of European descent call it *Lamba* land. The land has an average altitude of about 4000 feet above sea level. "The whole country is flat and slightly undulating, with here and there isolated kopjes or low ranges of hill." (Doke 1931:18) The land has trees but not thickly grown close to each other in most places. It is covered by grassland with streams, mostly flowing towards the main rivers of Kafue on the South West and Luapula on the North East of *Lamba* land.

2.3 Vegetation of *Lamba* land.

The land is occupied by the *Lamba* people, in what is the Copperbelt Province of Zambia and is a beautifully vegetative grown savannah type of area. Before deforestation took its toll on the land due to clearing for settlements, farms and charcoal burning as a result of urbanisation, the land had all types of trees, grass and shrubs growing along streams, beside small hills and on dry land.

The *Lamba* land's beauty, like that of its neighbouring territory of the *Lala* people is punctuated with streams, rivers, plains and hills. These appear at an average of five to ten kilometres stretch of land. The common trees are those which produce fibre such as the *julbernandra panicualata* (*umutondo*), *Brachystegia Boelmannii* (*umuombo*); the hard woods include: *Morguesia Macraura* (*Imiseshi*) and soft wood such as the *mukwa* (*umulombe, kaimbi*), which are good for furniture. Trees such as the *pannari curafelifolia* (*mupundu*) and *faurea saligna* (*saninga*) grow to a good size

that can be used for a dugout canoe that can take five to ten adults. Fruit trees in this part of the country are common and have been serving as additional nutrition for the local people. These include *Uapara kirkiana*(*umusuku*), *garcinia hultensis*(*umusongwa*), *strychnos innocua*(*akasongole*) and many others. Most of these fruit trees are medicinal in nature. One such example for stomach pains is *pseudola chnostylis maprounesfolia* (*umusangati /umusolo*). (Namakanda 2014, July 08th) The wild fruit trees are also immune boosters against a number of infections. Forests on the Copperbelt Province provided the locals and commercial traders with timber for construction and domestic use such as furniture, two handles and weapons. (Shamfuti 2013, 27th May).

The most durable railway line sleepers were products of the forests of the Southern and Copperbelt provinces. Hard timber was used for support structures of underground shaft mines. However, the forest species have been depleted due to urbanisation, clearance of land for agricultural settlements; wood fuel and charcoal.

About twenty years after the country's independence (1964), the government through the first National Development Plan (NDP) planted tree plantations of common pines and eucalyptus for timber, telecommunication and electricity supply poles. Today even these have been depleted, although little effort is being made to plant some hectares on the Copperbelt. The Zambian government currently imports poles for electricity power lines from neighbouring countries.

2.4. Effects of deforestation.

When the God given vegetation is depleted in a particular area, particularly trees, the risk of desertification, reduced rainfall and increased wind storms becomes unavoidable. The Copperbelt around Kitwe has not been spared these resultant phenomena. Bush fires usually accidentally started by rat hunters and smokers ravage much of the grass vegetation. Tall trees provide much cover when left to overgrow, so much that the grass grows in patches to allow fire control. This is no longer the case. It therefore follows that insects, small animals, bird nests, crawling animals like snakes, snails and turtles perish or are depleted through fierce bush fires. Through this careless way of managing the environment the country loses many benefits of living interdependently with other life and non-life forms.

Depleted natural tree species are usually resistant to moderate fire but the hybrid pine and eucalyptus trees are flammable. It therefore follows that the more unnatural tree plantations any community embarks upon, the more need for enhanced forest management and financial investment should be put in place by the powers that be. “While it is true that Zambia lacks the spectacular mountains of most of its neighbours, it has more intact *Miombo* woodland in the sub-region. It also has many large lakes and vast floodplains.” (Zambia Tourism 2013:1). It is imperative therefore that the Zambian community particularly on the Copperbelt, sustains the natural forests before a complete depletion of forest habitat occurs. The country in general, and the Copperbelt in particular is endowed with the *Miombo* characteristic of woodland of the vegetation type, dominated by the genera *Branchystegia*, *Julberuarchia* and *Isoberlimia*, with wide spread branches of flat leaves providing shelter to most life forms, shrubs and the soil.

2.5. Rivers and streams.

The major rivers of *Lamba* land are Kafue, which runs through the territory from the North West, the *Kafulafuta* River situated on the South Eastern boarders of the Copperbelt and the *Kafubu* river whose name is not the same as the first one (Kafue); meaning Hippopotamus but in different local languages of Zambia. *Kafubu* River is a tributary of the Kafue River. As the names imply, these rivers were once populated by a lot of hippos. The rest of the streams pour into these three rivers or form water shed by making their source in *Lamba* land towards the bigger river, *Luapula* on the boarders with Congo DR. Rivers and streams of the *Lamba* land were once clean with a lot of fish species to supplement nutritional needs among the locals.

Today, these water sources are either so polluted that the chemical and heavy metal pollutants from mining and other industries have choked marine life, or the rivers are overgrown and dry due to pesticides used by farmers around and within the Copperbelt.

Rivers served as modes of transport between villages with the use of dugout canoes. Domestic use of river water included cooking, bathing, watering gardens, drinking and other uses such as for construction.

However, both mining industry and climate change have affected water sources so badly that the water from these streams and rivers is either unfit for human consumption, or not just available due to droughts as a result of land degradation and forest depletion. The situation of environmental degradation in and around towns on the Copperbelt is of grave concern which requires urgent action by all the stakeholders.

2.6. Wild life before and after urbanisation.

Like any part of the continent of Africa, various types of wild life species inhabited the Copperbelt. Below is a survey of some of the known species, particularly those which existed before urbanisation.

2.6.1. Copperbelt before urbanisation.

The *Lamba* land which is today known as the Copperbelt was inhabited by a variety of animal and bird species. Historical evidence has it that Arab and Portuguese traders in Ivory from the East and West coasts of Africa respectively visited the *Lamba* territory in the 17th and the 18th centuries to trade in Ivory in exchange for beads, gun powder, guns, cloth and humans. One such source which indicates the trade in elephant tusks are the journals of Francisco Jose Maria de Lacerda of 1878(Doke 1931:31).

The land was truly inhabited by elephants, antelopes, buck, zebra, giraffe and big cats such as lions, leopards and of course the cattle family such as buffalo. Other animal species included hartebeest, Lechwe, Sitatunga, Gazelle, Eland, Anti -bear and Cane rats. Animal skins were part of the resources the inhabitants of the land were using for clothing besides tree barks.

Small animals which have been driven to isolated distant bushes (if any) on the periphery of mining towns included the common Duiker, Hare, fowls(birds), small spotted buck, jackals, fox and bush pigs. Even these are hardly seen today. Water bucks were common along all the rivers of the *Lamba* land. This is evidenced by the animal's name *Lwansobe* in the local language, meaning the place of water bucks, given to places associated with the space's presence before the depletion of animal species.

One of the earliest copper mines to be operated is the Roan Antelope in a town south east of Kitwe. It is believed that a European hunter shot and killed an antelope which fell on copper ore brownish stones. After he had collected the animal's carcass he went back to examine the stones which later proved to be copper ore lying on the surface hence the name of the mine as Roan Antelope mine.

Green caterpillars which supplemented protein sources for a traditional dish were collected during their season (end of October to Mid-November). However these insects can no longer complete their life cycle because of the sulphur dioxide and other industrial pollutants now found in the Copperbelt. They have been pushed further to the East, West and North of the *Lamba* land, among neighbouring tribes such as the *Lala*, *Bemba*, *Lenje* and across the border in Congo DR.

The rivers and streams of the territory served as sanctuary to many water bird species which today have been driven down south to the blue lagoon National park along the Kafue River, almost five hundred kilometres from the Copperbelt. The bird species which have been displaced from the area include: wild ducks, goose, stoke and many other smaller birds. Before pollutants were discharged in the rivers, streams and the land of the region under discussion a variety of large and small species of insects, marine life and animals inhabited the Copperbelt. Most of the land small animals such as worms and insects enabled traditional farmers to grow their food without chemical fertilisers and pesticides, whose introduction to the land following urbanisation have adversely affected quality and productivity from the soil.

2.6.3. Copperbelt after urbanisation.

Urbanisation of *Lamba* land brought with it the following elements: too many people living on locations as prescribed by the industrialists and the imperial government (Burawoy 1972), infrastructure such as rail, roads, pipes, sewerage ponds, power lines, industrial plants such as smelters and machinery workshops, chemical tanks and many others. Large portions of the land were cleared to accommodate all the above mentioned components of urbanisation. In the name of development human beings are able to disturb nature to the extent that life for many creatures becomes unbearable in a given context such as the Copperbelt.

Michael Cromartie in his edited work '*creation at risk, religion, science and environmentalism*' maintains that "human beings can disrupt natural balance with a speed or an intensity or scope that nature cannot accommodate." (Cromartie 2005:6) That is to say, that the human species are on a rampage to degrade nature beyond the supporting capacities of the ecosystem.

The above cited notion by Cromartie is the case in and around Kitwe town and the Copperbelt Province of Zambia. All, if not most of the developmental strategies for the region through copper mining have been anthropogenic in nature, with no concern for other species than humans.

The resultant effects of such development has been soil erosion, soil alkalinity, soil-impoverishment, lowered water table both in rivers, streams, lakes, unnecessary floods in rivers with the slightest rainfall, because the bear land terrain is unable to contain the water. Spillage passes through the land as a result of deforestation which in itself results from overcrowding in mining townships with limited or no source of energy. People resort to indiscriminate tree cutting for charcoal and other domestic use. Further, we agree with Mbiti who argues that "...the movement from the country to cities is so rapid that many towns mushroom in a matter of a few decades. Urbanisation creates more problems than anybody could cope with." (Mbiti 1969:220) The movement itself rendered the theme of nature irrelevant to town dwellers.

Before the introduction of electric smelting furnaces which have been in use at most the last ten years, copper smelting has largely been achieved by use of coal which produces smoke according to Goodman and Edwards, carrying "black soot, tarry matter, ash, sulphur dioxide and sulphuric acid that cause obvious damage to masonry soiling of walls and fabrics, interference with visibility, blackening of the leaves of plants and reduction in their growth, respiratory distress and disease, including pulmonary fibrosis and lung cancer in human beings." (Goodman and Edwards 1965:11) The above statement by Goodman and Edwards is a fact of the modern Copperbelt, particularly Kitwe and Mufulira towns. Most vegetables can no longer grow in backyards, except for resistant spring onions and a few other vegetables and some flower trees which can resist the pollution for some time.

One of the two ways of reconstructing nature and ecosystem as suggested by A.R Clapham in his address at a symposium does not seem to be applicable for the continuously embattled habitat of the Copperbelt. Clapham suggests that nature can be reconstructed by allowing “a natural system to reconstitute itself through stages of its primary or secondary succession- and success...” (Goodman and Edwards 1965:4)

The rate at which the degradation of nature is taking place in the absence of meaningful mitigation projects makes it too difficult for the *Lamba* land to be reconstructed within a memorable time, not at least for generations to come. Population continues to grow and the demand for copper and other minerals has become higher than before, making it difficult, if not impossible for the succeeding time to help nature reconstitute itself. The essence of the Gaia hypothesis which does not seem to place a responsibility on humans is implied by Clapham.

At independence in 1964, Zambia as a whole and the Copperbelt Province in particular was endowed with all sorts of forest cover, clean rivers, stream water and agricultural produce. Large portions of land were cleared as population movement from villages to mining towns increased. The first National Development Plan included tree planting by the government department of forestry, and it was a success. Today areas which were once covered by planted tree species ten to twenty years ago are either human settlement areas, farms or industrial plants.

Zambia is losing about 300,000 hectares of forest each year, according to the United States Agency for International Development (USAID), and according to the Zambian Republican Vice President, Honourable Inonge Wina. (www.times.co.zm 2015) The major factors contributing to this kind of loss continues to be agricultural expansion projects, charcoal production and of course settlements.

Zambia is among the top ten countries in the world which produces emissions from deforestation according to the USAID report of 2012. (www.usaid.gov 2012)

As a country, Zambia is yet to fully implement a global strategy of Reduced Emissions from Deforestation and forest Degradation (REDD+). A pilot project is being implemented in the Eastern province of the country for scientific evidence through studies that can help in the formulation of a national REDD+ strategy.

The basic concept of REDD+ is that if the world needs trees, those countries with trees and are making efforts to keep them, should be rewarded by companies, organisations or governments that are contributing to global warming through emissions. Whether the Copperbelt and areas surrounding Kitwe will benefit soon or later leaves much to be desired. It is just an ethical consideration that after striping land of its cover and making it infertile due to increased human activity, such projects should be introduced at all cost.

In fact the above mentioned initiative would serve as a dispensation of justice not just between the developed and developing countries but between humans and nature particularly for *Lambaland*. It is a way of paying back nature as it were, as long as exploitation is not allowed because of the money, if paid. Much more detail on what the government can do to alleviate the loss of natural resources will be discussed in chapter three with regard to policies and chapters five/six in the framework and recommendations.

2.7. The origins of the *Lamba* people.

Historical writings about the *Lamba* people of the Copperbelt are very scanty; Francisco Jose Maria de Lacerda wrote about them in 1798, according to C.M.Doke, a Baptist missionary from South Africa. The account of Francisco Jose Maria de Lacerda in his journals indicating trade and the kind of people he found in *Lamba* land is the only known written record of the tribe's presence in the area. There has been no other historical account recorded by any historian about the *Lamba* people.

It is however believed that the *Lamba* people migrated from the great Luba-Lunda kingdom which was situated in Angola. They are believed to have travelled through the Congo by the late 14th century. The *Lamba* group may have left the kingdom just before the Bembas of Northern Zambia, whose language *Icibemba*, is a dialect of *Icilamba*, the *Lamba* people's language. The *Lala* and *Bisa* tribes and their languages in parts of central and Northern Zambia have so much in common with the *Lamba*.

The old *Lamba* people if asked about the origins of their tribe only relate to the coming of *Luchyele* (God) or *Lesa* who they believe came from the East visiting the

earth and as he did so he arranged the whole country with rivers, hills, anthills, trees and grass. They further believe that *Luchyele* “came with numbers of people planting the tribes and communities in their respective places, and passed on to the West. Curious markings which are found on the sandstone in the *Itabwa* plain, not far from Chiwala’s village and Ndola township(The provincial capital of today’s Copperbelt) are pointed out as being the foot prints of *Luchyele* and his people which they left as they passed” (Doke 1931:31).

This legendary belief about the origins of the *Lamba* people points to the fact that God the creator gave them rivers, trees, grass and minerals for use. They extracted minerals out of which they made tools for domestic use, such as gardening and hunting tools.

The term *Ilamba* is derived from “*prostration*” or paying homage to an important person for example: a chief or king. It is traditionally believed that the *Lamba* people are naturally humble, obedient and honest. They earned themselves the tribal name when they prostrated before a conquering tribe and so they were left alone.

The *Lamba* people of the Copperbelt have no tribal marks on their bodies. Doke describes them as “ a handsome folk, and their women generally are extremely comely, so much that in the past *Ilamba* was repeatedly depopulated by Swahili slavers from the East and *Mbunda* traders from the West, so great was demand for *Lamba* women.” (Doke 1931:28) *Lamba* women are hard-working and they used to spend more time raising children, like many African women did. The origins of the *Lamba* people of the Copperbelt, who have so much in common with other southern African tribes, particularly those in Zambia are synonymous with the Bantus of central, East, West and North Africa pointing to the generally accepted origins of the earliest migrants from the Middle East and parts of Egypt, Sudan and Ethiopia (Kush).

The *Lamba* people today occupy mostly rural parts of the Copperbelt. They have been displaced by copper mining activities and settlements which have grown into towns and cities, the largest copper mining city being Kitwe.

They have been influenced in many ways by the related tribes which surround their territory. In the North are a tribe called *Seba*, whose language is a dialect of *Lamba*. The Luapula River which serves as boundary between Zambia and Congo DR lies on the North Eastern side of this district tribe. (Kamukwamba 1988:3)

Other tribes as mentioned before which surround and relate to *Lamba* people are the sister tribe of *Lala* people; the *Lenje* in the south East speaks a different language, but have influenced the *Lambas* in many ways, including issues relating to marriage traditions which are considered under the next sub-heading of life style and traditions of the *Lamba* people.

2.7.1. Traditions, governance and life style.

The *Lamba* people are a matrilineal tribe like most of their neighbours and sister tribes such as the Bemba, *Lala*, *Aushi* and *Bisa* in the North East of *Lamba* territory. The matrilineal clan descent means that only the chief's sisters can produce the heir to the throne, other than a brother, sister or grandchild from the chief's niece.

Originally, the ruling clan were the goat clan (*Abena mbushi*) until one son killed his father who was a chief called Chipimpi. Since that time, long before the *Lamba* people multiplied, they adopted a new clan called the hair clan (*Abena mishishi*). The clan according to *Lamba* legend was adopted from the experiences of Chipimpi and his sister Kabunda when they brought seed of modern crops from a neighbouring tribe.

Doke wrote that “there were no seeds or cultivated vegetables in the territory of the *Lambas*. Kabunda travelled with her son to the Lualaba River in the Luba country and was well received by the chief there. The Luba people cultivated their gardens, and Kabunda used to go and do her share of the work. She let her hair grow very long; and after a while worked it up like a great pot hollowed inside, with a small opening on top. As she went out to plant the seeds in the chief’s garden, she would take seeds of every type: maize, sorghum, millet, pumpkins and throw them into her hollow head gear, until it was full.”(Doke 1931:31)

When they returned to their country the *Lamba* land, they were a superior family with knowledge of food stuffs. Chipimpi became the chief because of the agricultural knowledge his sister, her son and himself acquired. The legend further states that one day when people had finished plastering a grain store, a goat was killed so that his son by the name of Kabunda,(the sister's name) and his nephew could wash off the mud in its blood, Chipimpi's son refused. The nephew did so, but instead the son killed a slave and washed in his blood and this was initiated by Kabunda's mother Chipimpi's wife. He then killed his father and named all his father's relatives as the goat clan (*Abena mbushi*), and named himself and his mother as the hair clan (*Abena mishishi*), saying his father washed in a goats blood, but he washed in human blood, a human with hair, hence the clan name. From that time on, the hair clan is the ruling clan of *Ilamba*.

His father's clan were annoyed at Kabunda's action and decided to kill themselves by tying each other on a long rope and walked into a very deep in-land lake called *umofya* clan's pool where they drowned. All except one woman of the goat clan was saved by her husband who cut the rope, having been tied at the end next to his wife. The man was from the leopard clan, and the action earned his clan respect among members of the royal family.

It is assumed that the *Lamba* people were the first cultivators of grain food among other Copperbelt neighbouring tribes, and others such as the *Lala*, the *Lenje* and *Bisa* who in turn acquired primitive agricultural knowledge from the *Lamba* people or from *Ilamba* as the people would refer to the territory. We will examine the *Lamba* people's skill and knowledge in agriculture in connection with preserving forests in the succeeding chapters. However from the onset it must be noted that the agricultural knowledge of the *Lamba* people never developed to a point of diversification beyond exploitation of most natural resources. Most *Lamba* people abandoned their lifestyle in preference for urban life in mining townships.

The *Lamba* traditional governance is organised through head men and women who represent the chief in every village. Various clans preside over various villages such as the goat clan (*Abena mbushi*), leopard clan (*Abena ngo*), mushroom clan (*Abena bowa*), elephant clan (*Abena Nsofu*), and many others. The chief also has a council

of select village head men and women, elders and some members of the royal family with whom he/she consults over matters of governance, dispute settlements and moral issues.

The paramount chief Mushili, has continued to receive appeals, if any from the lower chiefs, particularly those on the Zambian side. Chief Nkana of Kitwe, the city of my focus in this research is regarded as second paramount chief of the *Lamba* people, although he is not under obligation to send dues to the paramount chief, but only gifts in the form of grain. In the olden days subject chiefs would send bark cloth, meat, elephant tusks and any other valuables of the time. They were merely gifts and not meant to be a tax. Equally, subjects in chiefdoms were under obligation to send gifts to their chief as a sign of respect and homage.

2.7.2. Lifestyle.

The *Lamba* were originally a hunting and agriculturist people. They never kept cattle, a situation Doke refers to as "... determinant of their mode of life. They are typical exponents of hoe culture. The hoe is their most important implement, so much so that until recent times the marriage pledge was always made in hoes."(Doke 1931:27) The drift to mining towns eventually rendered most villages deserted or not populated as before.

2.7.3. Marriage.

Lamba women used to be married early, say around the age of fourteen to seventeen years. It was rare to come across a virgin who was single among the *Lamba* people as a result of early marriages for girls. The coming of colonial authorities served as a deterrent to the practice.

Parents of a young man would choose a bride for their son; usually the mother visited the girl's mother to make a proposal. At this point nothing was paid; and usually it would take few days before a response was received. Arranged marriages of this type were common even among other matrilineal tribes such as the *Lala*, *Bemba* and *Bisa* who are closely related to the *Lamba* tribe.

Upon receiving a satisfactory response, the mother of the young man would tell her son by saying “we have found you a wife. You find the *calico* (cloth).”(Doke 1931:160) The *calico* served as a bridal pledge. Once this was found by way of purchasing, or getting it from some relatives, the young man would give it to the girl herself who in turn gave it to her mother, witnessed by her paternal aunt (s). The young man’s relatives continued to prepare him until the marriage took place.

The ability of a young man to cut trees for gardens, make baskets of various types and purposes, hunt for meat and carry out other family sustaining chores was deemed as enough qualification in readiness for marriage. On the other hand the girl was placed under initiation for marriage. In addition to what she had been instructed at puberty, she was further instructed on how to look after a home, husband, herself and her expectations in the child bearing process.

Although young men and women (girls) married early in those days, the carrying capacities of land, rivers and forest was adequate for the population. In fact the tools available then could only allow people to clear limited portions of land, besides remote means of fishing, such as spearing in shallow waters. The bigger fish would easily be speared while smaller ones would survive for future fishing as they go through their reproduction cycles.

According to the *Lamba* custom, a man could not marry a woman belonging to the same clan as his. If this happened, it was regarded as incest, and worse still if the man’s father’s clan was also the same as the women’s father’s, it was also regarded as highly improper. However, lawlessness was still rampant among some persons who wanted to marry anyone they chose. Doke in his book, *The Lambas of Northern Rhodesia* recorded that “the marriage tie among the *Lambas* appears to be considerably looser than among a cattle keeping people with whom a considerable pledge is necessary on marriage.” This looseness has been increased in the territory since the advent of goods, money and foreign natives who can offer more attractions to the *Lamba* women than their husbands can. (Doke 1931:173)

If this was the case of *Lamba* women before the urbanisation of the Copperbelt, the situation in marriages became worse as the mining industry brought in more foreigners who earned more money. However it is important to acknowledge that there are also many marriages which are truly based on love, and have lasted for as long as both husband and wife have lived among the *Lamba*.

2.7.4. Divorce.

Culturally, there were instances when a man or woman could divorce a spouse. Such instances would include harassment of the man, especially by the in-laws; if the wife committed adultery, if either of the couple developed leprosy or syphilis; although some men would care for their wives; If the woman became a thief, disrespectful or refuses to care for the husband; if the wife refused to remain in marriage when the husband failed to prepare gardens, or continually beat his wife or if he was impotent. In all circumstances of divorce, children remained under the care of their mother to “whose clan they belong.” (Doke 1931:174)

In general the *Lamba* lifestyle always preserved their environment in terms of how land clearing for gardens was done, and the application of good methods of fishing were encouraged by chiefs. One such practice viewed as an environmental concern is the time to burn forests. No one was allowed to set fire to a bush before the chief issued instructions to do so. Usually, this would be done from mid-June to early August, when everybody would have removed their food crops from the gardens to a safe storage place near their homes. Early burning preserved the forest, small animals and shrubs. Late burning destroys wild life and forests because fire burns fiercely when the bush is too dry. If one person set fire to a bush before instructions were issued, such a person was either banished from the chiefdom, fined or received both punishments, depending on the extent of the damage caused by the fire.

2.7.5. The current life style among the *Lamba*.

Modernity for the *Lamba* people of the Copperbelt has its own advantages and disadvantages; one such advantage is that village communities have access to established health and education facilities such as hospitals and schools which are

within short distances. The most disadvantageous aspect of the *Lamba* life style today is the loss of identity and cultural norms. Biodiversity in and around *Lamba* land does not any longer receive care from the local people because they are concerned with what to eat, to wear, and how to prosper economically. Villagers no longer receive instructions from the chiefs with regard to when to set fire to the forests, or what fishing methods to use in their rivers. The aforesaid responsibilities have been relegated to the central government who are not readily present on the ground or at the local level. The local governments who represent the central government in villages have no capacity to enforce the law on the environment. I have cited more failures of the environmental management law about mining, land, the environment and minerals in the following chapter three.

A lot has to be done to inculcate or disseminate what Boff refers to as the “ethics of responsibility and compassion” (Boff 1997:135) among the locals of the *Lamba* land. Currently whatever efforts are being made such as replanting of forests with new species of trees are aimed at only serving the interests of industry for consumption. Nature and other living beings are not considered for sustainability, or replacement of the depleted species. The mining industry on the ~~C~~eopperbelt maintains utilitarian and anthropocentric budgets, plans and activities leave out the need to sustain the carrying capacity of the land, air, water and forests for other life forms. The final chapter will deal with recommendations in as much as sustainability would demand, particularly for the Copperbelt Province and Zambia in general.

2.8. The cosmology and religious beliefs of the *Lamba* people.

The *Lamba* conception of the universe is linked up with a belief in a supreme being they would always refer to as *Luchyele* (God). Like any cultural group, they have a mythical story of how they fit in the universe, and how they relate to the rest of creation and the expected destiny for their community and its individuals. Clement Doke describes the *Lamba* people as “theist, and withal monotheists, but their theism, as will be seen, scarcely enters into their religious life at all” (Doke 1931:222). That is to say, the *Lamba* people did not have a strong traditional religion which they would anchor their beliefs on like other tribes outside the Copperbelt region.

2.8.1. The *Lamba* belief in God.

The *Lamba* people believe in a high god whom they call *Lesa*, who is the supreme being and creator of the universe. Further, they assert that by his creative responsibility *Lesa* or *Luchyele* gave them land with all it consists such as rivers, trees, wild life, marine life and the rest of the resources. Kamukwamba in his thesis of 1988 wrote that the *Lambas* "...believe that after creating the earth, God came down from heaven with people somewhere in the East. He started arranging things in their own respective places and planted people in their own respective areas, going westwards."(Kamukwamba 1988:6) This mythical belief about creation contradicts their legendary story of migrating from some place outside Zambia, although the two stories can be differentiated by classifying the belief in God as religious and the migration story as historical.

They also believe that God (*Lesa*) promised to return and take them back with him; for which reason those who die are believed not to have died forever, but to have gone to a resting place which they called *ichiyabafu*, or the abode of the dead to wait for the return of *Lesa*. Some historians suggest that the later belief could have been influenced by missionaries who had visited the area in the late 17th century to early 18th century. The South African Baptist missionary Rev. Clement M. Doke in his work about the *Lamba* people in 1931:31 still indicated that their belief in god as one who would return some day, goes back to a long time before Christian missionaries interacted with the people in this part of the country. If *Lesa*, their god gave the *Lamba* people a territory with all the resources, it is therefore prudent to assert that he also commanded them to manage their country-*Ilamba* with care and without discrimination over other creatures. Most of such caring instructions are contained in taboos. One such taboo is that "all hair must be picked up and buried, lest the *Ikwikwi* (bird of ill-omen) should use it for nest-making, and the owner dies."(Doke 1931:214) This taboo is aimed at keeping the environment clean, although it comes with a threat of death to any offender; and it used to be observed strictly because no one would want to die. Human air was regarded as part of human refuse which would contaminate the environment and cause pollution to it.

2.8.2. The *Lamba* concept of the earth.

The *Lamba* people believe that the earth is flat, and that the sky is its cover. According to the *Lambas*, dwarf dwellers exist at the ends of the earth where clouds are cut off by these fellows for their food. God (*Lesa*) is conceived to exist above the earth in the sky which they regard as a solid element. Whenever a person went missing, the *Lambas* believed that he or she had fallen off at the edge of the flat earth, or that the dwarf fellows had detained the lost person for straying into their territory, especially if the lost person resurfaced after some days. This belief is expressed in their folk tales which were passed on from one generation to another.

2.8.3. Their concept of the sun, the moon and the stars.

The *Lamba* people believed that the sun is a living organism which is very fierce because of its heat. It was further believed that “the sun (*akasuba*) travels across the dome of heaven until it reaches ‘land end,’ and then it secretly travels back at night, very high up behind a bank of clouds.” (Doke 1931:223) The belief is similar to what appears in Wisdom literature about the sun. The Psalmist declares that “in heavens God has set a tent for the sun, which comes out like a bridegroom from his wedding canopy...its rising is from the end of the heavens, and its circuits to the end of them...”(Psalm 19:4-6) RSV.

It was also believed that on the sun exist people who are different from known humans. According to the old *Lamba* belief, these sun dwellers have duties such as heating the sun, polishing it up when it cools off during the night, and dragging it back to its position for another day’s journey. The cold and hot seasons according to the *Lamba* people’s old belief, are brought about because “the people on the sun ‘sprinkle’ water on it, to damp down the fires, saying lest we should burn up the crops of our friends down below.” (Doke 1931:223) It was believed that in summer the same dwellers would pour no water onto the sun so that tracts of grass can dry up in readiness for cultivation by people who dwell on earth.

The above mentioned concept of the earth and how it relates to the sun is a clear indication of the interdependence of creation in the *Lamba* cosmology. The *Lamba*

people know that the sun plays an important role in their existence, and all other elements of the universe, such as land, the stars, the moon, rains and seasons are dependable features for them to exist. They would punish anyone who behaved in such a way which disturbs the natural order to affect their lives negatively.

Some unacceptable behaviour which was punishable included shooting a firearm into the sky, lest holes be made in God's banks of a great lake for rains and result in floods, or unnecessary rains. Lesser lights in the sky such as the stars were believed to be attendants to the moon which is the "chief" of the night while the sun is the "chief" of the day. When there was a flash of lightening, the *Lambas* believed that someone somewhere must have committed an offence against the community. They say flashes of lightening are knives of God which his workers swing around, and should they fall on earth, the country would be destroyed.

The above assertions by the *Lamba* people's belief are full evidence of their knowledge about the universe and how human practices can affect the entire creation. However, that knowledge was limited to mythical and traditional religious concepts without input from science and Christian theology.

2.8.4. The *Lamba* people's belief in the spiritual world.

While the *Lamba* people believe in the existence of the physical world as they know it, they also believe that spiritual beings do exist. According to the *Lambas*, there is a strong bond between an individual's everyday life and the spiritual world. The spiritual world for them consists of both good and bad spirits. The good spirits include the guardian spirits for each individual human being, particularly those who are commended by the community as good. Others are hunters' spirits known as *bakaluwe* which possess professional traditional hunters. The divining spirits were, and are still believed to be re incarnated among family members after a diviner dies.

The bad spirits included those which possess people to drive them mad and spirits of bad people who are long dead which can strike the living with sickness. Most of these spiritual beings were believed to inhabit forests, hills and big water bodies such as lakes, rivers and waterfalls. Some of these wild spirits would not be bad in

themselves, but their reaction towards human beings depended on the moral component of human behaviour. For instance having sex near and around such places would be deemed as immoral and wild spirits would punish the offenders with some kind of a disease, or render them impotent/ infertile; and if they carried a child during such an act, the child would be attacked even with death. Whenever sex was practised outside a home, a couple was advised to appease such spirits by leaving items such as beads, money(coins),white meal, piece of cloth or piece of meat in such a place.

In fact, among the *Lamba* people, it is still taboo to have sex in the bush, along the river or on hills outside dwelling homes. Sex is sacred because it is through the act that procreation is possible; and they maintain that any pleasure related activities should never be conducted in a place which they consider as sacred sources such as rivers, streams, lakes and forests. Big trees, hills and vast plains are also conceived as habitat for some spirits, hence they are sacred. Any one carrying out an activity in such a place should offer a sacrifice such as white beads, blood of a chicken, white meal or new local beer. According to Job Shamfunti (08th June,2014,Lusaka) our informant, this regard for the wild helped the *Lamba* people to preserve it from total destruction and over consumption of resources such as trees, water and grass. Chapter five of this research will relate to how communities on the Copperbelt can make use of African mythology to sustain ecosystems.

2.9. Urbanisation of the *Lamba* land (Copperbelt).

Most of what has been described above in this chapter was the situation of the *Lamba* territory or country and its people's life style before the copper mining industry was started on a commercial scale. It must be noted here that the *Lamba* people were small scale miners who extracted copper from sulphide ore which could be found near the earth surface. They would smelt the sulphide containing ore in charcoal furnaces by using bellows to get copper which they in turn sold to slave traders who came from the East and West African coasts. Iron is also known to have been processed in a similar way by iron smiths, some of whom came from their neighbouring tribes such as the *Lala* people (who specialised in working in iron tools.) The methods used by the indigenous *Lamba* people in mining and processing

minerals and the scale at which this was done could not affect habitat for other life forms or disturb ecosystems. Mostly all activities were domestic based. There was no need for people to move from one area to occupy any part of the *Lamba* country in great numbers. Whenever groups of people came to the area, they were merely trading, just as the *Lambas* would also travel to other territories for trade.

As mentioned above, the *Lamba* people lived in villages headed by men (and rarely women) from any clan. The headmen were the immediate supervisors over every household to ensure food security, social security, justice for everybody and they presided over communal tasks and activities such as making of a bridge over a stream, sinking water well for the village and carrying out instructions from the chief. Visits and exploration intensified in the late nineteenth to late twentieth century by Europeans into the country (territory) of the *Lamba* people.

2.9.1 Early mining explorations, discoveries and settlements.

For many years, copper was mined and smelted in the neighbouring Belgium Congo, which is part of the Zambezi watershed, until 1899 when Kansanshi mine was pegged (Kalapula 1980:2) two hundred kilometres west of the present Copperbelt. It remained undeveloped for a long time due to long distance from the hub of mining industry on the Copperbelt.

Bwana M'kubwa mine was opened in 1902 in Ndola about fifty-five kilometres east of Kitwe, the mining capital. Surface indications of sulphide ore were discovered by a British hunter near Luanshya River when he shot dead a Roan Antelope which fell on sulphide containing stones. Small scale mining was also started at Antelope in 1902, although "serious construction was started in 1927, and in 1929 at Nkana (Kitwe) and Mufulira, where development on a large scale was immediately forthcoming". (Kalapula 1980:2, 16)

The mines in Luanshya (Roan) and Kitwe (Nkana) were operated by two companies, namely; the Roan Selection Trust and the Anglo-American Corporation respectively, and their regional offices were in the gold rich South Africa Mining. Concessions were given to the two giant companies by the British South Africa (BSA) company on

behalf of the imperial government headed by the Queen in London. It should be noted that since the colonial days, copper prices have been controlled by the London Metal exchange; even after countries gained their political independence, meaning that economic independence has not been achieved yet to this date. The supply/demand and scarcity further determined commodity value, and Zambia suffers from the problem of selling non-value added copper to the international market. The high production cost is cited as one of the causes. This very fact of non-economic independence by a country has a bearing on the absence of sustainability plans for the human environment, other life forms and nature in general by the mining companies who were more interested in profit making for their benefit than in the welfare of the land and its people, particularly indigenous Zambians. Most of the tax from mining companies then went to the imperial government, the British in particular and a minimal of it was retained by the local colonial administration mostly for the welfare of white settlers and miners. Residential areas for expatriate workers were more developed than where the indigenous people were living, a sign of discrimination by the colonial masters who benefitted from the copper mines. If indigenous humans were not planned for in terms of sustained housing and settlement, how could the imperial government plan for the sustainability of forests, rivers, hills, wild life and the natural world? It was a matter of plundering the resources following the scramble for Africa.

2.9.2. Kitwe-an industrial town.

Following the establishment of mines on the Copperbelt and elsewhere in Zambia, white settlers started arriving into the country in numbers. Kitwe as a township of traders was founded in 1923. The original name was “*Chitwe ca Nsofu*”, meaning head of an elephant. European settlers who could not pronounce “*Chi*” substituted the syllable with “*Ki*” hence the change from *Chitwe*” to “*Kitwe*”. The stream at whose source the head of a dead elephant was picked by villagers from Chief Nkana long before the establishment of the mines identifies with the city’s name to this day.

Traders got trading rights from the mining companies, and by 1929 Kitwe became a public town. All the Copperbelt towns in 1963 had a population of 42,850 out of which, 2,870 were non-Africans. The rural Copperbelt population by this time stood

at 87,000(Zambia Consolidated Copper Mines (ZCCM) report 1993). Today Kitwe alone has about 700,000 people living within the residential areas of the city (State of the Environment Report, 2013).

Kitwe later became an industrial city with activities such as iron founding, light engineering, copper smelting, maize milling, brewing, concrete products, food products and soft drinks production, for example it became the head office for the famous Coca-Cola Company Zambian branch, plastic manufacturing and many more such as motor vehicle engineering (ZCCM Report, 1993).

The question which would always be raised is: would the water supply, sanitation, power supply and other services continue to grow to cater for the ever growing population? The environment, particularly the situation in rivers which started receiving the effluent and the land where tailings and slag from copper smelters have been dumped from the colonial days have become a source of concern.

Mine townships such as Wuzakile, Mindola and Chamboli were ever growing in Kitwe. These were for African miners according to their work grades. The European workers lived in Nkana East, Nkana West and the town centre mansions; of course these dignified locations were taken over by Africans following the country's independence in 1964, and the Zambianisation of the industry there after as we shall see below.

Other mines and townships in the Copperbelt, as the region is known without much reference to it as the land of the *Lamba* people before urbanisation, came into existence, surrounding Kitwe (Chitwe- head of an elephant) which became the hub of the copper mining industry of the region. These towns, which 'suffocated' the forests of the *Lamba* land and its inhabitants are Luanshya, which hosts Roan Antelope mine with mostly old mine shafts some of which have since been closed, and new Open Pits have been sunk by new investors, mostly companies from Chinese origins. Roan Antelope mines are located in the south east of Kitwe. Kalulushi and Chibuluma towns are on the south west of Kitwe; Chambeshi, Chingola, and Chililabombwe are located on the North West, sharing the copper deposit with Katanga province of the Congo DR.

Kitwe still remains the focus, and indeed the hub of mining activities in this once natural world inhabited by all sorts of animal and bird species mentioned above.

2.9.3. Evangelisation of the Copperbelt.

2.9.3.1. Early missions.

The exploration and reports of David Livingstone from mid-1850s to 1873 before he died in Northern Rhodesia (Zambia), and the reports of other explorers became a platform for many missionary activities as well as the colonial invasion of the African continent. The historical ‘scramble for Africa’ Berlin Conference of November 1884 to February 1885 opened up most routes into the interior of Africa, such as the land of the *Lamba* people, the Copperbelt. The influx of mine workers and settlers became an opportunity for the spreading of the gospel. It must be noted that some mine workers and settlers had contact with the gospel before they came to work on the Copperbelt mines. Their role in the spreading of the gospel and the life of the Church on the Copperbelt is elaborated below.

John V.Taylor in his book “*the Christians of the Copperbelt*” indicates that “Livingstone’s death in 1873 gave an immense impetus to several different Missionary Societies. By common counsel the Church Missionary Society (CMS-of the Church of England), the London Missionary Society (LMS), and Scottish Presbyterian churches launched in to a strategy of penetration from the east coast.” (Taylor 1961:2) Other missionary entities were the Universities Mission to Central Africa(UMCA), the Jesuit mission, Paris Evangelical Missionary Society (PEMS), the Plymouth Brethren, Christian Missions in Many Lands (CMML) the Primitive and Wesleyan Methodist (who themselves formed a union 1931), and the Free Church of Scotland.

The missionary conference on Northern Rhodesia in 1914 was attended by representatives from the Paris Evangelical Missionary Society, the Methodists, Jesuits, Plymouth Brethren and the Anglicans. By 1932 all missions operating in the territory were represented.

By 1925 when drilling for copper ore started at Nkana (Kitwe) by the Bwana M'kubwa Company, there was so much attraction of both European and African movement of people to the Copperbelt. The railway line had reached Luanshya by 1929, Kitwe and Mufulira by 1931 and 1932 respectively.

In Kitwe alone, mine townships were growing rapidly. These were Mindola, Wuzakile and Chamboli for Africans of various categories of work class, while the whites and Europeans maintained their residence in low densely populated areas. This was a sign of a developing colour bar between Europeans and the Africans who lived in crowded compounds.

However, it must be appreciated that the word, "...mine covered not merely the industrial plants, but the houses, roads, markets, hospitals, cemeteries, schools, canteens and recreational centres of employees. All the necessities and most of the amenities of life from the cradle to the grave have been taken on as the responsibility of the mining companies with the Omni-competent paternalism of modern industry."(Taylor 1961:30) This was just for a transition as we shall see below because mines exchanged hands from being private to nationalised and private again.

It was in such an environment where gospel preaching was also treated as one of the social religious requirements to maintain discipline and security among the miners. In addition to social amenities listed above, the mine owners assisted in constructing church buildings, upon allocation of a plot to build one by the time Taylor was writing his book (1961) the assistance to churches by mine companies continued for about ten to fifteen years.

While the Africans trekked to work on the Copperbelt mines, Taylor reports that "there was an immediate demand for men from Nyasaland. These had a longer contact with Europeans, many of them were mission trained and, moreover had already done mine work in South Africa or Southern Rhodesia. Nyasalanders provided a crop of instructors and were the first to qualify as clerks. So from the start, the worker from Nyasaland won a position of leadership which has had significant results in society and in the Church". (Taylor 1961:33) the Free Church of Scotland,

for instance had been in Nyasaland (Malawi) before they entered Zambia in 1889 through Northern Province with evangelists such as the father to the first Zambian President, David Kaunda who was educated by the Scottish missionaries before coming to Northern Rhodesia as a missionary. Miners who came from Tanzania and Southern Rhodesia equally had earlier contacts with missionaries due to the positions of their countries of origin.

Taylor reports that R.J.B Moore exclaimed when he wrote that, “passing through a compound after dark on almost any night, you could find little groups of people gathered round the light of an underground worker’s acetylene lamp, singing Christian hymns” (Taylor 1961:34). Here was the expression of the need to form a church by those who migrated from areas where missionaries had already been, such as Northern, Central, Luapula, western and North Eastern parts of Northern Rhodesia; from across the territorial boundaries in Nyasaland (Malawi) and Southern Rhodesia (Zimbabwe). Others trekked from South Africa and Congo and also brought in a Christian element of life style. The literates from Nyasaland of course worked as self-employed or volunteer evangelists, not responsible to any missionary society, but responsible to God. They organised evangelistic visits to townships and preached to gatherings, particularly over weekends. This state of affairs for a church which was just beginning caused divisions later when the need for supervision arose, particularly in the post national independence, for the United Church of Zambia.

2.9.3.2. The African Union Church of the Copperbelt (1925-1935).

The Christian zeal among miners to plant churches in compounds or townships was the motivation for the beginning of the Church on the Copperbelt, and of course as an institution for moral formation for miners’ children. “Christian miners evangelized not only in the compounds but in the *Lamba* villages round about...” reports Taylor. (1961:34), and these spontaneous upcoming African Congregations started at Ndola, Luanshya (Roan Antelope), and at Nchanga in Chingola, Mufulira and of course the town of our focus Kitwe (Nkana).

Below, we have elaborated how these Congregations became the basis for a United Church for the whole country, Zambia; and today it is the largest Protestant Church

in the nation. There was no missionary supervision at the beginning of the predominantly African Church on the Copperbelt. The only missionaries who were nearby to give support and guidance to these self-motivating African Congregations of mixed identities (Congregational, Catholic, Evangelical and Methodist) were those at Kafulafuta Baptist mission in Ndola, some seventy kilometres from Kitwe.

These African Congregations like any other at the time could never think of the effects of copper mining on humans, nature and biodiversity. What mattered then was employment, wages, taxes by the imperial government and of course the issue of class in the mining society. The church in general did not even realise its role of advocating for creation sustainability. The natural world to them was just some source of charcoal, timber, firewood, game meat, copper mining and of course never realising that later in their lives or that of their children these resources would come to an end or be used up.

The issues of land and the environment were left for the governing powers to decide and implement plans for exploitation of the same for industrial consumption in the West. The Christian faith was initially alienated from sustainable development in the West according to Balcomb in his article *what theology? Who's Development? – interrogating Theology and Development in the Secular Academy* in the Journal of Theology when he says that, “the secular academy in the West has been shaped by enlightenment values which, in turn defines the contours of the relationship between theology and development especially with regard to the adoption of a critical discourse towards issues of faith, the insistence on attention to human rights and use of the social sciences as critical tools in the examination of issues around development.”(Balcomb 2012:7). The West represents the origins of the Christian movement for the developing world, and Zambia’s Copperbelt region included. If such a scenario was created in the early Church of Africans, then Christians from the early days of the Church on the Copperbelt cannot be blamed for not advocating for an appropriate and sustainable use of land and other natural resources by mining companies. Moreover salvation for them was exclusively human this was the message they received.

2.9.3.3 The United Church of Zambia.

The United Church of mainly African Christians on the Copperbelt became part of today's United Church of Zambia. The United Church of Zambia (UCZ) was born out of long intentions for a united church by missionary groups and the United African Christian Worship in Copperbelt towns.

The inspiration for a United Church attracted the attention of other Missionary Societies such as the London Missionary Society who had already established mission stations by 1883 in the Northern and parts of the North West (Luapula) regions of the then Northern Rhodesia(Zambia).The Society was formed by Evangelicals, Anglicans, British Methodists, Congregationalists and the Scottish Presbyterians with, “a fundamental principle of sending missionaries to preach the message of the glorious gospel of the Blessed God to far off countries” (Snelson 1990.33). Others who had already established mission stations in the country were the Primitive and Wesleyan Methodists who merged in 1931, and formed the Zambia District of the Methodist Church, as it was called by the time of the country's independence; the Livingstonia Free Church of Scotland missions in North Eastern and parts of central Zambia, the Church of Barotseland, itself being an indigenous offshoot of the preceding Paris Evangelical Missionary Society, and the European Free Church Council of the Copperbelt. The spirit of union was already in action which resulted in the Free Church of Scotland mission, London Missionary Society Congregations, African Union Church of the Copperbelt and the European Free Church Council to form the United Church of Central Africa in Rhodesia (UCCAR) in 1958. Thus the United Church of Zambia was formed when the Zambia District of the Methodist Church and the Church of Barotseland joined the earlier union. The leaders of the three blocks of churches declared: “This is the basis of Union and the declaration of intention to unite made by us on behalf of the churches we represent this sixteenth day of January in the year of our Lord ,one thousand nine hundred and sixty-five” (1965) (Chuba 2005.144). This is one great benefit to the Zambian people, and the Copperbelt in particular from the mining industry which brought workers together to prepare the recipe, so to say, for a United Church which is about to celebrate its golden Jubilee of the union on 15th January,2015. This is one

of the churches whose voice is expected to be heard on behalf of the Earth Community.

2.10. The distortion of the African concept of God and creation.

Like many African people, the *Lamba* people of Zambia's Copperbelt refer to God as the creator of people and all that is around them. In fact God is conceived and understood, though not so clearly with reference to the many things he has created. John S Mbiti in his book entitled *African religions and philosophy* says that "African ontology is firmly anthropocentric, and this makes man look at God and nature from the point of his relationships with them."(Mbiti 1969:48) For the *Lamba* people therefore, clearing forests, flattening hills and polluting water streams and rivers for the purpose of mining copper ore is actually alienating them from the God they knew from time immemorial. Africans believe that ancestral spirits and many other spirits related to their welfare live among the forest, along streams, in hills and mountains. These are dwelling places for spiritual powers responsible for their welfare as individuals, as families and as communities.

Posey quotes Kofi Asare Opoku when he said, "the distinctive feature of Traditional African Religion is that it is a way of life, (with) the purpose of ... order(ing) our relationship with our fellow men and with our environment, both spiritual and physical. At the root of it is a quest for harmony between man, the spirit world, nature and society."(Posey 2001:4).

That is to say that the traditional communities of the Copperbelt have been cut off from their relationship with the conceived deity and their spiritual world. The basic knowledge of the *Lamba* people about their God through the environment, which has been depopulated by the mining industry, cannot be passed on from one generation to another. In fact the generation which witnessed the coming of the mines in the early to mid-twentieth century (1900s) has died out from the traditional settlements. The sacred view of the forests, streams and hills is no longer held by Copperbelt dwellers neither in cities, towns nor in villages. The order of life experience is the noise from vehicles, industrial machines, explosives, and busy humans each one caring only for their own concerns. No time is given to reflecting on nature by

individuals, groups or communities at a relational level between humans and the spiritual world through nature.

2.11. Effects of natural resource commercialisation on the local people.

While it is undeniable that the mining industry would bring about personal and community development for the *Lamba* people of the Copperbelt including education, it must be noted that the majority of the local people in villages remained uneducated because most schools were located in mining townships for miners' children. Few of the indigenous people whose parents worked in the mines managed to obtain some level of education from mine schools other than enjoying mine township life which attracted people from all over the country and beyond.

The poor uneducated *Lamba* people in the villages have nothing to fall back on because forests have been depleted and rivers have either dried up or have been pullulated to non-life sustaining levels. Those who try to cultivate some crops as peasant farmers are hardly ever successful because the soil and air around their villages is extremely polluted. The result has been that Mother Nature can no longer provide for its people through land production in the way it provided for them prior to mining starting in the area.

2.12. Conclusion

The Copperbelt is situated in the *Lamba* territory which was endowed with a beautiful landscape of natural bamboos, tree species ranging from shrubs, soft wood, fruit trees, large and hard wood which helped the colonialists and the pre-independence mine owners to make cheaper but durable constructions of bridges, railway lines, houses and processing plants.

Agricultural and mining methods which were used by the first inhabitants of the territory were not as polluting and degrading to nature, as those used by the commercialised mining industry. Hillsides, river banks forest, thickets and hot springs where sacred places for the *Lamba* people. Their African traditional worship and religion flourished in these places, even when early attempts to evangelise the area

was made in the early 1900. Land and everything on it was held as the basis for human, animal and plant life.

Urbanisation as a result of the mining industry has disturbed the traditional way of life which had a conservative attitude towards nature among both the original land owners, settlers and those who just came to work in the mines. To this end therefore, the creator known as Luchyelele by the *Lamba* people has been alienated from his creation and confined to heavenly places where the new and modern worshippers look in hope of his second coming.

God's presence, according to the *Lamba* and many African tribes, was felt among them through His creation, including human beings. The unpredictable rain patterns for example, due to climate change as a result of global emission of greenhouse gases, deforestation and other causes implies that their God, Luchyele does not care about them any longer, and that he will come to punish those who have contributed to the disasters of droughts, soil acidity, water pollution and the disruption of nature in general at his second coming from the West.

The god of the *Lamba* people is no longer embodied in his creation, and it is not too late for the people to form any indigenous environmental protection movement to protect the sacredness of mother Earth from further contamination and exploitation by strengthening, maintaining, and respecting the traditional teaching and cultural laws (Gonzales & Nelson 2001. 509). However, what has remained of the natural world of the *Lamba* people is either fenced off by individuals or organisations with money, so that they can use such portions of land for their own purposes. Such land is usually under lease title and the indigenous have no access to it, not even for herbal medication. Traditional rulers are still there to govern what is considered as traditional land with modern minded villagers. In fact the *Lamba* people around the mining towns have lost their identity which has been 'swallowed', so to say, by mixed groups of settlers from miners who fail to go back to their home provinces once they retire or they have been retrenched. The scenario of the Copperbelt might not be an isolated case, but it is unique in a country where the indigenous seem to have no voice against the invasion of their habitat and traditional sacred environment.

The worst is still to come to the *Lamba* land because the once copper producing mines are either closed because the ore has been exhausted, or they have become too expensive to operate. Preparation for a shift in people's lives from a monthly income earning lifestyle to depending on non-productive land has to be made by the Zambian government. Who shall speak for the land on the Copperbelt and bring about obedience to scripture is still the concern of the study.

CHAPTER THREE

COPPER MINING INDUSTRY IN ZAMBIA (THE COPPERBELT)

3.1. Introduction.

Having reconstructed a traditional, cultural, religious and geographical outlook of the region in the previous chapter (two), this chapter focuses on the copper mining industry in the area and its effects on both human and non-humans, particularly land, wild life and vegetation. The copper mining industry in Zambia has changed hands in terms of management and ownership since the country gained its independence. The industry was in private hands on trust, then after independence it was nationalised and when parastatal management failed, it was privatised again. The transitions have had adverse effects on the country's economy, human and the natural world. Copper processing is assessed in detail particularly at concentration and leaching plants with the ending process of smelting. The laws which govern land, mining and environmental management have been analysed to assess their effectiveness for the sustainability of the earth and its inhabitants in the Copperbelt.

3.2 The Country's brief historical and geographical information.

Zambia attained its political independence from Britain on the 24th October, 1964. The country is land locked surrounded by the following eight neighbouring countries: Congo DR, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia and Angola. "It lies between latitudes 8 and 18 degrees south, and longitudes 22 and 34 degrees east." (State of the Environment 2000:1) The country covers a total land area of 752,612 square kilometres. It is endowed with forty per cent (40%) of the water source in the sub-region. *Miombo* woodlands and grasslands dominate the country's outlook.

The country's climate has three main seasonal patterns' namely: "The cool and dry season which stretches from May to August, the hot dry season from August to November and the rainy hot season stretching from November to April."(SOE. 2000 report: 1). Like its copper mining industry, Zambia's democratic emancipation has experienced transitions from multiparty democracy after independence, to what was termed as a one party participatory democracy in 1972, and to a multiparty democracy again in 1991.Three political parties have been in power so far, with the

current Patriotic Front(PF) party as the third to form a government after the United National Independence Party(UNIP), and the Movement for Multiparty Democracy(MMD). Five presidents have ruled Zambia since its independence, with the first Kenneth Kaunda of UNIP ruling Zambia for twenty-seven years, followed by Fredrick T.J. Chiluba, Levy P. Mwanawasa(both deceased), Rupiah B.Banda of the MMD, Michael C.Sata (deceased) and Edgar C. Lungu, both of the Patriotic Front. The population of Zambia according to the last census is just over thirteen million, with over 60% aged below thirty-five years. (Central statistics, 2010)

3.3 The copper mining industry.

The opening of a series of large scale copper mines by multinational mining corporations led to the rapid urbanisation of the Copperbelt. As cited above, the first copper mines on the Copperbelt were opened in the late 1920's at Roan Antelope. By the late 1940s, tens of thousands of Africans were permitted to settle in rapidly growing Copperbelt towns. These towns became, "primary base for alternative forms of indigenous political organization..." (Larmer 2011:25)

Larmer also records that most mine migrants were drawn from the most out spoken tribes of Northern Luapula and parts of the Central provinces, while the local *Lamba* people concentrated on working on farms to support white skilled mine workers as garden boys and in homes of white mine workers. They were afraid of the tiresome nature of mining labour.

The self-rule aspirations that led to the country's independence did not consider how a new nation would manage its mineral resources, until the mining policy was amended in 1995. The policy is examined later in the chapter. Mining and the process of the copper industry largely depended on the mine owners and the type of management of a particular mining company, and what that company regarded as ethical and sustainable.

3.3.1. Nationalisation of mines.

Before independence (1964), mines were operated by the Anglo-American group and Roan Selection Trust (RST) who intensified exploration on the Copperbelt and elsewhere. Shareholders expropriated profits, a trend which caused unrest among white farmers and a few African independence nationalists who strongly felt that a lot more could be done to develop the country by retaining a significant proportion of profits earned from the mines for re-investment, thereby sustaining both production and employment for workers.

The country's independence in 1964 brought with it a lot of expectations towards development. In 1970, barely five years after independence, the mines were nationalised. "Individual mines were re-organized as Nchanga Consolidated Copper Mines Ltd (NCCM), for those which were under Anglo-American corporation." (Zambia copper Mining Industry Report, 1993) The group included the mines in Kitwe. Others fell under Roan Consolidated Mines (RCM), particularly those which were operated by Roan Selection Trust (RST), and by 1975 the two blocks of mining groups were established as self-managing entities with indigenous Managing Directors.

Further nationalisation took place in 1982 when the two companies cited above were brought together to form the Zambia Consolidated Copper Mines Limited (ZCCM). The Zambian government had a fifty-one per cent (51%) stake in the nationalised mines, resulting in reduced outside investment, and minimised profits. Reduced investment in copper mining and processing meant little or no sustainability measures both economically and environmentally. They had been retailing with copper deposits of about 0.76 to 0.89 per cent copper content. This is due to remote or primitive methods of copper processing used at the time because of lack of investment in new technology. Some companies have been extracting copper deposits from the tailings or the slag damps which have been posing as both an environmental and health hazard through contamination and collapsing on miners. Below is a table showing the drop in production levels following the privatisation of mines.

Table 1:1970 to 1986 copper production in tonnes

Year/period	Tonnes
1970/1971	745,171 tonnes
1975/1976	666,408 tonnes
1980/1981	587,518 tonnes
1982/1983	575,518 tonnes
1985/1986	463,354 tonnes

(Zambia Copper Mining Industry Report, 1993)

Unfortunately, as production went down, copper prices on the international market also went down. Standards of operations and supervision fell to lower levels. This trend compromised environmental management and the corporate social responsibility of the mining companies in communities where they operated. Creditors were owed a total of US \$30 million in November, 1991; causing suppliers to halt the supply of the much needed spares for equipment to ZCCM. "ZCCM had a top heavy structure which inhibited efficient communication." (Mining Industry Report, 1993:10)

The World Bank came in to finance the mines in 1984 under the Export Rehabilitation and Diversification projects (ERD). Other financiers such as the African Development Bank (ADB) and European Economic Community (EEC) came on board to a total investment of three million US dollars (\$ 3,000,000),(Mining Industry Report,1993).By 1986 to 1987, production stabilised at 470,000 tonnes.

3.3.2. Nationalisation and new management of mines.

The new wind of multiparty democracy in politics by 1991 brought about more strain on human resources as copper production went down to a mere 387,000 tonnes in 1991/1992 financial year(Mining Industry Report,1993).Creation of employment was one of the promises the politicians were making in the run up to the multiparty elections in 1991. Political cadres and skilled manpower were to be employed; for the former it was a reward for rallying behind the Movement for Multiparty Democracy and later were employed on merit.

3.3.3. Recovery in production.

Following the appointment of new management, 236,794 tonnes was the production for eight months to November in 1991, 16% below the budget (when the monthly average production for eight months was 29,000 tonnes) the new management had to take the following measures to ensure the survival of the mining industry and of course the jobs and government revenue:

- Restructuring and rationalisation of operations by ensuring that the company (ZCCM) sticks to its core business, which was mining and process of mineral products.
- This meant that the mining company would not finance schools, hospitals, water, transport, farms, lodges, dry cleaners and recreational facilities and other projects unrelated to mining.
- There was a need for cost cutting and cash conservation.
- Restoration of the flow of equipment and spares.
- Restoration of financial control and ensure financial discipline and accountability.

Production rose to 34,400 tonnes by 1992 on average of four (4) months, compared to 29,600 during eight (8) months in November, 1991; thereby recording an increase of 26 %. (Investment opportunities in Zambia Presentation, Johannesburg 1993)

3.3.4. Social and Environmental impact.

The measures taken to revamp production of copper in the mines had a negative impact on the social life of the mining towns and the environment. The low prices and low productivity affected economic growth, employment creation and the generation of foreign exchange in addition to the incapability to foster diversification to key sectors like manufacturing, agriculture and tourism. ((Muchimba 2010:5) Poverty levels rose to alarming proportions because a number of the work force was declared redundant. Structural Adjustment Programmes (SAPs) were demanded by lending institutions such as the World Bank and the International Monetary Fund (IMF). Cutting down on the work force meant that many families were pushed out of

their monthly income unexpectedly. Charcoal burning and other means of survival became rampant and tree species started to dwindle around the mining towns.

The environment was affected because the social responsibility of the mine companies, such as refuse collection from townships, sewerage management and the general care and maintenance of the township infrastructure was no longer attended to. Further, infrastructure such as tailing dams was not properly managed, resulting in unnecessary spillage of heavy metal effluent into the environment. Subsistent farmers surrounding mining towns in Kitwe, Luanshya and Mufulira were badly affected. Their crops such as groundnuts, maize and legumes would not grow to maturity for harvest. The soil became toxic; resulting in no or low production of food. Charcoal burning as mentioned above, became rampant and forest neighbourhoods were cleared in no time. The voiceless Earth Community, as well as human beings became the object of discrimination and plunder. Re-privatisation was a must for the Zambian economy to survive; because mineral production and copper in particular has been the prime source of the country's economy. (Muchimba 2010:5).

3.3.5. Re-privatisation of mines.

It is said that "Zambian politicians were finally convinced of the potential boosting effect which re-privatisation of the mining industry might have on the Zambian economy." (Muchimba 2010:5). The two big mine companies, Konkola Copper Mines(KCM) and Mopani Copper Mines(MCM) were finally privatised and the process of privatisation was completed in March 2000 after years of under capitalisation, falling copper production and poor performance of mining divisions of the ZCCM. (Muchimba 2010:6) After privatisation, there have been indications of recovery in copper production following huge amounts of money being pumped into rehabilitating plant equipment, commencement of new smelters, new pits and shafts and brand new machines. Mopani Copper Mines for example, has invested US \$323 million into the sinking of 1,272 metres deep synclinorium shaft in Kitwe with a parallel ventilation shaft. The measure however does not mitigate the damage already caused to creation by the former mine owners.

Further, we assert, based on what we have cited in the process of privatisation, that the new private mine owners do not have the issues of the environment and

sustainability of natural resources at heart, and that their major concern is to maximise profits and externalise it for more viable projects outside of Zambia. This is an important hypothesis to be investigated as we analyse Zambian policies on land, mineral resources and the environment and how companies comply with the law.

Before we consider the major mining and copper processing methods used by the private mine owners, a brief look at who they are or who the shareholders are in the two big mining companies and where they originate from will be of help to understand the situation.

3.3.6. Copper mining shareholders.

Kitwe copper mines, locally known as Mopani Copper Mines which are the main focus of this study are jointly owned by Glencore International AG with a stake of 73.1%. This is a Swiss company, and social economic justice activists from Switzerland have been interested in getting details of the company's dealings in terms of working conditions and social corporate responsibilities of the company.

First Quantum Minerals limited with a 16.9% stake in Mopani is a Canadian company. Canadian society is by nature against any form of injustice anywhere in the world. How responsible the company is in its efforts to extract and process Zambian copper leaves much to be desired. The Zambian parastatal, Zambia Consolidated Copper Mines investment holdings (ZCCM-IH) retains 10% of the shares. Together they run the Mopani Copper Mines (MCM) "in terms of mining operations at Mufulira mine, smelter and copper refinery together with Nkana (Kitwe) mine and the cobalt plant. The company also operates a number of oxide copper projects at several of its properties, including an in-situ leaching project at Mufulira, and heap leaching at Nkana" (Muchimba 2011:5). Details of copper processing will be discussed below.

The Konkola Copper Mines (KCM) when privatised in 2000 was jointly owned by Zambia Copper Investments (ZCI), the International Finance Corporation (IFC) the Commonwealth Development Corporation (CDC), Government of Zambia through ZCCM-IH with 65%, 7.5%, 7.5% and 20% shares respectively. Anglo-American Co-

operation, the International Finance Corporation (IFC) and CDC had withdrawn investment from KCM in 2002, citing “unfavourable copper prices and lack of third party co-financing for the Konkola Deep-mining projects...” (Muchimba 2011:12). However, in August 2004, Vedanta Resources PLC came on board KCM and acquired 51% controlling shares. New Open Pits have since been sunk and operating, new concentrator and smelter plants have been constructed following the capital injection by Vedanta Resources PLC, making Konkola Copper Mines the largest mining employer on the Copperbelt.

It is observed that in both MCM and KCM the controlling stake in terms of shares is in private hands. This has an effect on the value of corporate social and environmental responsibility of the companies, compared to the time when the mining companies were controlled by the state. The capacity of the state which has undergone a number of Structural Adjustment Programmes has not been able to provide checks and balances in terms of standards and environmental protection in the mining sector. The question of who shall speak for the environment is a question posed by Deane-Drummond and Bedford-Strohm (2011) keeps on arising.

3.4. Copper mining and processing methods.

Mining for mineral deposits involves clearing large portions of land, regardless of the inhabitants of such land. Vegetation and animals that live in trees and on land, underground or below the land surface such as moles are badly affected by mining activities. Mining activities are known to have affected many human communities by uprooting them from their home lands to places where they are still exposed to toxic chemicals and pollution. Kahp-Chin Chung correctly says “mining has left a lasting mark on people and landscapes around the world...and mining is the world’s most deadly occupation. 40 mine workers are killed on the job each day on average, and many more are injured”(Chung 2010:61).That is to say, that it does not matter whatever method is used in extracting minerals, the damage is always astronomically high.

David D. Kemp observes that “mining and quarrying operations frequently move rock at a greater rate than would be possible in nature, except perhaps under the effects

of catastrophic events such as earthquakes and volcanic eruptions" (Kemp 2004:179). This statement by Kemp illustrates the fact that nature is seriously disturbed by mining in any given situation. This kind of destruction occurs at all levels of mining for a mineral resource; from the stage of preparing the site, the extraction of the mineral ore, transportation and processing of the ore until the site is abandoned. Kemp asserts with observed experience that "a significant problem in areas that have a long history of resource extraction is the presence of old mines, quarries and waste dumps left by companies that ceased operations before the passage of current environmental regulation" (Kemp 2004:180). In fact the aforementioned was partly the cause of the disaster at Mufulira copper mine in 1971 when the mine was flooded due to a tailing dump which was sitting on top of mining tunnels which caused ground subsidence. A lot of miners died in what has been the worst Zambian mine accident so far. An example of how to avoid a similar disaster will be cited when we look at one tailing dump dam we visited outside Kitwe town.

3.4.1. The underground mining.

Kemp describes underground mining as "to extract a mineral deposit when it is not accessible from the surface. A vertical shaft is sunk from the surface into or adjacent to the deposit and horizontal galleries are driven to remove the mineral which is then raised to the surface." (Kemp 2004:180) An Environmental Impact Assessment (EIA) is conducted before a major mineral extraction project is allowed to proceed. Depending on the results of the assessment, a project can be abandoned or modifications can be conducted to reduce on the expected impact. Kemp however notes that "in developing countries, for example, it is not uncommon for a higher level of environmental pollution than would be allowed by an Environmental Impact Assessment to be traded off against reduced unemployment and poverty". (Kemp 2004:180). Besides this notion of averting unemployment and poverty, there are high incidents of corruption between mining companies, regulators of the environment and government officials. In some cases even traditional rulers have been suspected of conniving with the so called investors in avoiding the Environmental Impact Assessment advice to their subjects.

When the Kitwe mines such as the central shaft, South Ore Body(SOB), North and Mindola shafts were sunk many years ago in the late 1920s to early 1930s, the vegetation (cited in chapter two) and all sorts of biodiversity were disturbed, misplaced and destroyed. It should be noted here that there were no Open Pit mines in Kitwe and Mufulira before the privatisation of mines in 2000. Underground mining is expensive but causes minimal destruction to the surface natural outlook in terms of the size of the area affected. The rock containing copper sulphide is cut off by blasting underground. The sound and shock of blasting affects first, the workers themselves, some of whom retire or are laid off due to impaired hearing; and nearby residents, particularly those suffering from high blood pressure are affected daily. Some buildings crack eventually and inhabitants of nearby environments are misplaced as they drift away from the terrible sounds.

Once the copper sulphide rocks are brought up to the surface of the shaft, a primary crusher breaks them into the size that can be loaded onto the train wagons for transportation to the concentrator plant. Eleven thousand (11,000) tones of rocks are delivered at the concentrator every day according to our informant, John Malekani,a metallurgist(29th June,2013).

3.4.2. The concentrator plant.

To concentrate is to increase the copper content from about 2% to about 20 %(Malekani, 2013, 29th Nov) the concentrator plant at Kitwe receives rock from the four shafts mentioned above by twelve train wagons each day and night. When the rock arrives at the plant, it is off loaded onto the conveyer belt which takes them to the first crusher which works at the rate of 1,000 tonnes per hour. This is the sulphide primary crusher at the concentrator before the secondary crushers takes over. Here the stone is crushed to smaller size which is conveyed to ball mills made of steel balls, and then to bar mills where chemicals and lime are added.

The next stage is the floatation where by bubbling copper particles using air and water, the waste sinks down while copper floats, and whatever is not floated goes to tailings dams as waste. Although the chemicals added at the floatation stage were not disclosed to us, one imagines how concentrated they are even as they are

disposed of to the dams. The chemicals are highly concentrated in order to enable metallic particles to float in water and air, while the chemicals are not carried on with copper particles, but just recycled for two or more floatation stages before it is allowed to be disposed of as part of tailings (Malekani, 2013, 29th Nov).

The cleaning stage with about 12% copper content allows the concentrate to pass through air at a high pressure. After this stage, 20% to 25% copper content is obtained. Water content is removed, and about 12 % of it remains while about 88% solid copper sulphide is obtained by passing it through ceramic filters slowly. Copper concentrate is the final plant product before it is sent to a smelting plant where the reverbatory furnaces at 1,100 degrees heat the copper concentrate which melts at 1,087 degrees to separate actual copper. The effects of smelting the copper concentrate will be analysed under smelting.

The process of concentrating the copper sulphide is subject to a lot of leakages of chemical and mineral products into the environment and the natural world. Most machines used at the concentrator plant are very old and suspected to have been taken over from the nationalised industry by private companies. In most cases the so called re-capitalisation of mines in terms of plant machinery have been repairs or old machines removed from other countries where the operating companies own mines and shipped to the Copperbelt in a re-painted condition. This is another issue with regard to investment which the government policy should have provided adequate checks and balances for when selling companies. The aging machinery is enough evidence to prove that there is little of capital investment in terms of equipment replacement, besides repairs to old machinery. This confirms our observation of so much leaking pipes, tanks and machinery systems in the whole process of the concentrator plant, and they all lead to the tailings dam which will be assessed below.

3.4.3. Surface copper mining (Open Pits)

Surface or Open Pit mining is believed to be the cheapest method of extracting mineral ore which is close to the earth's surface. The Copperbelt in Zambia is home to the second largest Open Pit mines in the world after those in Chile. Private mine

owners, particularly in Kitwe (Mopani copper mines) and Chingola (Konkola Copper Mines) have carried out more surface mining than underground activity ever since they took over in early 2000. There are seven (7) surface mining areas in one town Kitwe (Nkana) by Mopani Copper Mines (MCM). The mining area called "K" and NOSE projects were contentious when the Environmental Impact Assessment report (EIA) was subjected to a discussion between residents in the area, the developer (Mopani Copper Mines), and the regulator, Zambia Environmental Management Agency on 13th Jan, 2012. We attended the presentation of the report, and some police officers had to be on standby just in case the presentation would end up with a physical confrontation between the mining company and the residents. One of the issues of concern was the fact that the nearest residential building to the Open Pit, a church building was only one hundred and thirty (130m) metres from the proposed area of the Open Pit mine, and that because of such a short distance residents would be disturbed by blasting, drilling, dust and all sorts of noise, air and other pollutions related to surface mining.

The figure below shows the distance from the residential area to the proposed site for the mine. When the presenter was asked how the mining company would deal with disused pits after mining operations, the answer was never in the affirmative, but the presenter said that it would depend on whether the government of the day would fulfil its obligations contained in the Memorandum of Understanding (MoU) signed between the company owners and itself [government]. The discussants of the report were not privy to the contents of the Memorandum of Understanding. The underground shafts were all sunk before re-privatisation in 2000. It therefore follows that the newer investors would just cheaply strip open the earth surface and take away the mineral deposits at the expense of vegetation, and the inhabitants of the area.

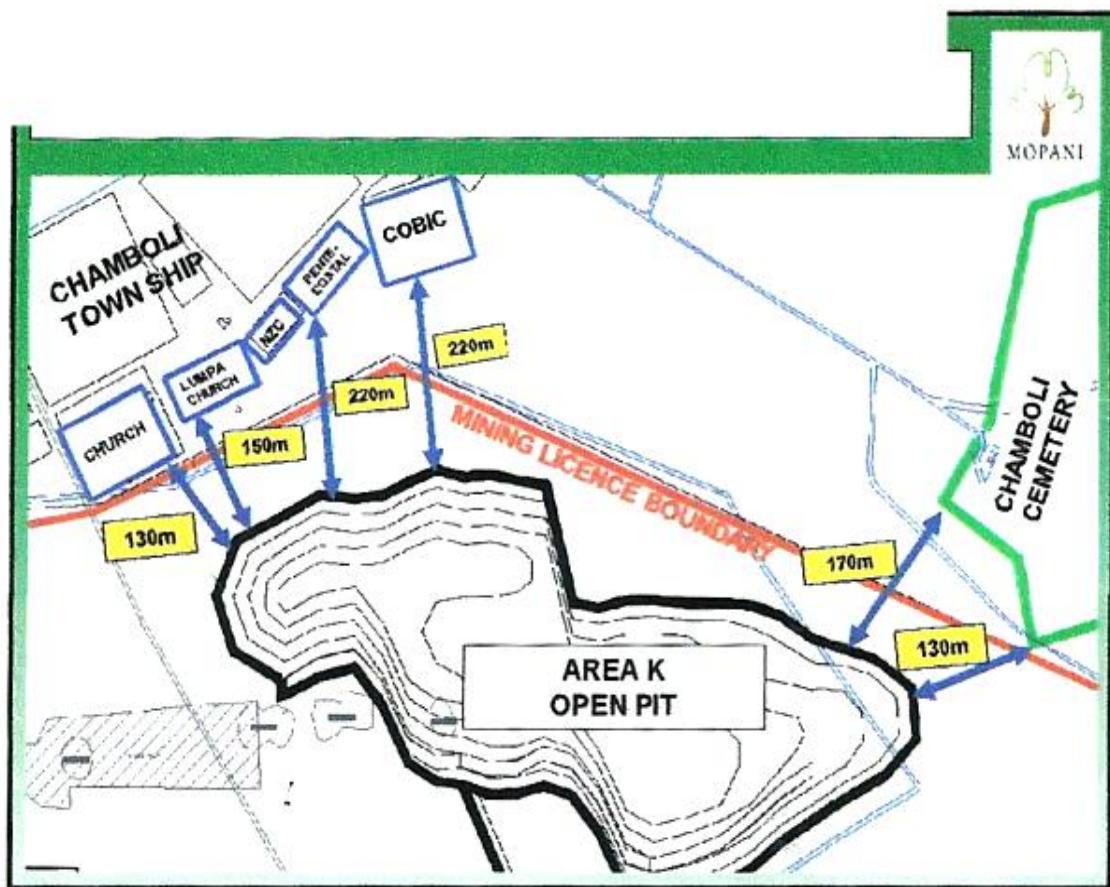


Figure 1: Arial site for proposed new Open Pit mining project at area 'K' and the 'NOSE' in Kitwe

3.4.4 Proposed project's benefits

It was reported by the presenter of the Environmental Impact Assessment (EIA) report that the surface mining at area "K" and NOSE would benefit the Copperbelt society, particularly those in Kitwe in the following ways:

- To maintain steady production from oxide caps up to 2020
- To sustain employment of workers at Open Pits and leach plant for a minimum of ten years
- To attract direct investment of US\$ 8million to the project
- To continue circulation of US\$ 16 million per annum in commercial and social activities from the following:
 - Providing US\$ 2million (salaries to Mopani workers)
 - To provide US\$ 14million to suppliers and contractors payments (US\$1.8 million for salaries)
 - To enhance corporate social responsibility by Mopani Copper Mines (MCM)

Analysis of the above purported benefits of the project shows that none of them would be directed towards alleviating the damage the project would cause to trees, land, animals and the environment in general. In economic terms, workers do complain that inadequate wages are paid to them. The principle of equal pay for equal job done is not applied. The cheaper mining method of Open Pits or surface mining is very expensive in terms of the loss suffered by nature, wild life and misplacement of human beings.

David Kemp stresses that “surface mining has a greater environmental impact than underground mining, but whatever precautions are taken, neither type of operation can be accomplished without disrupting the environment, and that disruption often continues long after mining has ceased.”(Kemp 2004:183).The site of an Open Pit mine is illustrated in appendix 2. The project proposal for Area ‘K’ and the NOSE cited above were deferred for modifications of the original plan of activities. It was agreed that there would be no blasting or use of explosives at the proposed Open Pit mines. This is just one of the measures proposed to lessening the negative impact of noise on the residents and the environment.

The issue of waste disposal is dealt with under tailings dams and their management. However, the waste rock and top soil is never channelled to tailings dams, but they are dumped on the surface, creating another environmental problem to the place wherever these are dumped. Waste rock, if not carefully managed can cause Acid Mine Drainage (AMD) which spills into water sources and the food chain, and ends up contaminating human and non-human livelihood right from birth.

3.4.5 The Leach plant.

While the concentrator plant receives copper sulphide ore from underground mining, the leach plant receives its copper oxide ore from surface mining or Open Pits. The process of leaching is actually the sucking out of copper sulphate from the rock by use of sulphuric acid. Below is the process by which copper oxide ore is processed to electrode stage.

The plant metallurgist, Thomas Phiri (29th Nov.2013) explained that oxide copper ore comes from Open Pits or surface mines as marcasite. Upon arrival either on trucks or train wagons, the rocks are crushed into smaller particles of a manageable size of stone. It is then taken to mills where it is reduced to 0.15mm screen; 80% of the material passes through the sieve like screens. The material is then taken to pre-leach rectangular tanks for thickening to porridge like form by adding water to it. The porridge form is pumped into leach tanks where sulphuric acid is added to the material to dissolve the copper into a “Pregnant” Leach Solution (PLS).

The next stage is to wash the stuff so that copper is taken up when other solids go down, and what remains is referred to as liquor which is neutralised before it goes to concentrate stage for copper extraction at a level where copper electrodes are easily made. Handling of acids at the extraction pond(s) is crucial because various concentration levels are used to maximise the extraction of copper from the porridge. Moisture is removed, like at the concentrator and the concentrate is taken to smelter. Disposal of the waste both from the concentrator plant and the leaching plant is carried out by pumping a liquid mixture of heavy metal residues, dust, chemicals and the rest to the tailings dams.

3.4.6 The Smelter.

The process of smelting involves re evaporating the concentrate at the furnaces by heating at 1100 degrees as earlier stated. The refinery converts the concentrate to matte, then to blister copper, anodes and finally to cathodes which are sold as copper. The smelter plant releases sulphur dioxide which is captured and converted into sulphuric acid. Mopani Copper Mines (MCM) manages to capture up to 51% of the sulphur dioxide which is liquefied into sulphuric acid. The company promises to capture up to 91% of the fumes when the modernisation of the smelter in Mufulira is completed, according to the then chief Executive Officer. The emission of the sulphur dioxide from the smelter in Mufulira has been disastrous for residents and the environment. In an interview with residents of Butondo and Kankoyo townships who live in the wind way of the fumes, they were asked how the emission of sulphur dioxide affects them and what they have done about the situation. In response they complained of being deprived of vegetables in the area because nothing grows in

their backyards. People live less than 30metres from the operation plants of the mines, which makes them vulnerable to respiratory infections such as difficulty in breathing for many people. (See appendix 3) They further said they had taken their complaint to city civic leaders, company management and their area Member of Parliament by way of writing and demonstrations, but no satisfactory answers were given, and no action was taken. A Baseline study on Corporate Social Responsibility by Council of Churches members was conducted in August, 2009. Members of the affected communities were sensitised regarding their rights to health and a clean environment, and what they needed to do when dealing with issues of pollution in their area. The outcome of the exercise was that when the management and government leaders were approached, they promised to look into the problem technically.

The smelter's refuse creates dump slag which is equally a health hazard. The slag in Kitwe is nick named as the "black mountain." It has been a source of conflict between illegal miners and law enforcing agencies because a number of lives have been lost through accidents. Walls of the slag collapse over individuals or groups of illegal miners who "scavenge" in the dump for copper deposits.

The ecological justice is overshadowed by economic and political demands. The baseline study wonders whether civic and political leadership does exist to represent the electorate or they are there just to serve the interest of the investors (Council of Churches in Zambia, 2009). The theological framework addresses most of such questions in chapter five of the dissertation.

3.4.7 Tailings dam.

The tailings dam visited under this investigation is named dump15A, which is 12 kilometres away from the concentrator and leach plants in the western side of Kitwe. The area covered by the dam is 937.5 square kilometres. The establishment of the tailings dam over such a vast area caused a lot of damage to nature, wild life and the environment when it was established in 1971. Vegetation, arable land and all life forms which inhabited this vast portion of land were either misplaced and/or destroyed during the construction of the dam.

Three (3) pipes take liquid waste from the concentrator and leach plants to the dam. Two of the pipes are 16 inches in size, while the third pipe which is 18 inches in size takes waste water (of course with chemicals) to the dam. Water enters the centre of the dam, and is allowed to overflow into the environment. Heavy metals and chemicals are allowed into the wild environment above the specified standard levels. International specifications according Zambia Environmental Management Agency (ZEMA) are listed below.

The Environmental Technologist, Henry Kapasha (29th Nov.2013) who conducted the tour of the dam with us explained that tailings are disposed of in two ways; one pipe goes into the dam at the open end, while the other is a cyclone by which tailings dam wall(s) is built away from the pipes. Dam walls are maintained in order to stabilise the dam. Trees and grass are planted to reduce on dusting and erosion because a lot of vegetation is cleared as the dam expands and during construction as already cited. It must be noted here that not all types of trees and grass can grow in such an environment of chemical and metal pollution. The *Albidah* tree has proven to be one of the trees that can survive the acidity and alkaline conditions of the tailings dam walls. It fixes nitrogen into the soil and holds the soil together. When the wind blows, a lot of fine dust is eroded into the nearby surrounds, and when the rain season comes, the mixture of heavy metals and chemicals are eroded into streams, farm land and other sources of livelihood.

The technologist further explained that the exercise of tree planting around the walls of the dam has been an experimental one as a response to environmental concerns. More investment by mine owners and the central government needs to be put into the project of preventing more contamination of the natural world through erosion, flooding and other forms of spillage.

3.4.8 Effluent parameters.

The Zambia Environmental Management Agency (ZEMA) has set standard parameters for mining by which the effluent must be monitored, and below are the standard limits:

- Potential hydrogen (PH) should range between six and nine; anything below six is acidic, and above nine is alkaline.
- Total Dissolved Solids (TDS) limit is 3000mg per litre.
- Total suspended solids (TSS) are limited to 100mg per litre.
- Total copper (TC) limit is 1.5mg per litre. This is a limit for drinking water as well, anything more than this becomes hazardous to human life.
- Total cobalt limit is 1mg per litre.
- Total iron limit is 2.0mg per litre.
- Total manganese limit is 1.0mg per litre.
- Dissolved sulphate limit is 1,500mg per litre
(Kapasha 2013 29th Nov).
- Other metals such as Zinc and Lead have a limit of 2mg per litre.

Bole holes have been sunk at a distance of ten metres (10m) from the dam for the sampling of underground water contamination.

The problem comes in when the question of monitoring of the parameters is raised. Who counter checks the reports of the mining company on a regular basis? Zambia Environmental Management Agency (ZEMA) does not regularly sample the effluent but depends on reports from the company environmentalists.(Henry Kapasha, 29th Nov.2013) This is a compromise of the standards and poor stewardship on the part of the state that sponsors Zambia Environmental Management Agency (ZEMA) as the regulator.

The carrying capacity of the dam is 180,000,000 tonnes; by June 2013 the dam had received a total dump of 138,432,881 tones. The mining company is already looking elsewhere for the establishment of a tailings dam. However, new technology has proved that not all copper is extracted at a leach plant from the copper oxide ore. A hot leaching plant is being considered for construction so that tailings produced by such a plant can be reclaimed for further process at the hot leaching plant. This is all aimed at maximising profits for the mining company; and nothing or very little, if any is re-invested into reconstruction and sustainability of land and nature. Once depleted, nature and its resources are lost forever in the world of so called development, and overconsumption habits by humans. Indeed, ‘creation (is) at risk’

as Michael Cromartie entitles his edited work about “*Religion, science and Environmentalism*” (Cromartie 1995).

3.5. Impact of mining activities on Nature and the Environment.

There has been a lot of damage caused to both land, the living and non-living creatures, humans and ecosystems in general wherever the mining industry has been carrying out activities such as exploration, mine development, mineral extraction, processing and transportation. The above described processes in copper production are enough evidence to show that mining causes the following types of damage and pollution:

3.5.1 Air Pollution.

The surrounding features in an environment such as vegetation and air itself is heavily polluted by dust which comes from clearing sites for mines, mineral extraction particularly at Open Pits and emissions from the processing plants. Chung reports that “smelting metals contributes some 19 million tonnes of acid-rain-causing sulphur dioxide to the atmosphere annually that is 13% of global emissions.” (Chung 2010:61). Dust particles are visible and can be removed by bare hands on tree leaves, branches and shrubs. The point in the case of emissions is illustrated by the experiences of residents in Mufurila which is affected by emissions from Mopani Copper Mines smelter.

Human beings, vegetation, animal species and infrastructure in general are affected by air pollution. Respiratory difficulties are experienced by people who live in and around the smelting plants such as those in Mufurila. It is a known fact that emissions from this part of the world adds to global ecological problems.

3.5.2. Water Pollution

Water is one of the most and easily polluted source of livelihood for all the living and non-living. The tailings dump system cannot work without large quantities of water. Whatever is pumped to the dams goes in liquid form, meaning that the end disposal is either into streams, rivers, lakes and oceans. Underground water is equally polluted right from the processing plants to the dams. It has been mentioned above

that In June, 2013, one tailings dump dam 15A outside Kitwe city had an accumulated total dump of 138,432,881 tonnes of water, dust, mineral solutions, and chemicals. Water carrying varying percentages of effluents is deliberately spilt into the rivers and the environment. Water is also polluted by waste ore which does not include the overburden earth and rock which are removed in order to reach the ore underground.

3.5.3 Alteration to Landscape

Land becomes the first “victim” so to say, in all mining activities. The mineral exploration stage may not seem to be involving much of land deformation or removal. However, when excavations, drilling and sinking of shafts are carried out, a lot of damage is done to land and vegetation. Heavy earth moving machines are used at a very high rate.(see appendix 2) Both where the overburden is taken from and where it is heaped causes landscape alteration. During production and processing of the minerals, mountains of waste slag are created, and the notorious “black mountain” of Kitwe was created in a similar way. The said mountain has since been sold to a company which will extract any copper deposits left due to limited technology of copper processing methods which were used at the time.

3.5.4. Impact on Forests

One of the causes of land loss in Zambia is mining which is highly regarded as a developmental industry. When forests are removed, habitat for wild life is lost. The effect of deforestation goes beyond what humans can appreciate. Trees contribute to the absorption of carbon dioxide which is responsible for global warming resulting in many calamities such as flooding and erratic weather patterns. In the following section we shall examine the national policies on land, minerals, mines and the management of the environment. Features of an Environmental Impact Assessment (EIA) report is used at one stage to assess compliance with the law in terms of managing the environment.

3.6. The National Policies.

The Zambian government has three major legal instruments which regulate the management of land, minerals, mines, natural resources in general, and the environment. All regulators such as government ministries, management boards and departments in charge of the above mentioned sectors draw their authority from the said laws. However having a law or policy in place is one thing and implementing such a law is yet another issue. Legislators would have done their part by putting in place legislation that would be of use to regulate the use of land, mineral extraction, and the management of the environment. The success in implementing legislation entirely depends on all stake holders such as the regulator, ministry or a department, the developer of any piece of land or industry, and the affected communities.

3.6.1. The Lands Act No.29 of 1995.

According to Zambian law, all land is vested absolutely in the President and is held by him in perpetuity for and on behalf of the people of Zambia (Lands Act No. 29 of 1995:270). This implies that any officer or authority regulating the use of land acts on behalf of the President of the Republic of Zambia. Land is host to all the resources, and by vesting it in the President, the Act serves to, “provide for the continuation of leaseholds and lease hold tenure; to provide for the continued vesting of land in the President and alienation of land by the President; to provide for statutory recognition and continuation of customary tenure; to provide for the conversion of customary tenure into leasehold tenure...” (The Land Act No 29 of 1995:269)

The above statement qualifies the purpose of the Act or the Law to ensure that no foreigner or developer does anything to land without the fore knowledge of the state through appropriate authorities. According to this Act, “land means any interest in land whether the land is virgin, bare or has improvements, but does not include any mining right as defined in the Mines and Minerals Development Act in respect of any land.” (Lands Act No.29 of 1995:270) A lease hold to land in Zambia only provides for surface development such as buildings, business, agricultural, residence and the non-excavating activities as may be described in the tenure. The maximum lease of land does not exceed ninety-nine years, but it is renewable as perpetual succession by individuals, families and organisations. Business companies may not be given

such a long lease period depending on who holds the lease, whether they are Zambians or not. It is unbelievable how land has been subjected by law to the status of an object for manipulation by humans. The silent land only speaks when the abuse affects the user or the so called developer, but even then its voice is not heard by most people, but a few with an ecological mind and sight are able to speak for land and advocate for its right use.

3.6.2. The customary land.

The Land Act provides for settlement of persons in what on customary land where the traditional rulers preside over such areas, and when a lease to hold a title in such a location is required by application according to state lease procedures, conversion of customary tenure into leasehold tenure is commenced. The process for the conversion of rights from a customary tenure to a leasehold tenure is only commenced after the approval of the chief and the local authorities in whose area the land to be converted is situated. (Lands Act No.29 Of 1995:274) The procedure with regard to conversion of customary tenure to leasehold tenure is practically and economically expensive. Peasant farmers find it difficult to go through such processes which usually involve paying the village headman, the chief and the local authority before one finally makes prescribed payments to Ministry of Lands, in addition to paying for survey and transport costs. Of course payments to village headmen and chiefs are not regarded as purchasing the land, but as paying homage to traditional rulers. When foreign investors wish to acquire land for their investments, it is usually the local poor people and the natural world around them who are displaced and adversely affected. What seem to be huge sums of money to be paid are easily paid off to headmen and chiefs by such investors, who even offer the local residents money in order to purchase their inheritance. In most cases, when such investors are allowed or land is alienated to them by the ministry in the name of the President, provided that procedure was followed, the traditional inhabitants, vegetation and the environment are victimised, depending on the purpose of the investment on the leasehold.

Section 4 (1) of the Act states that “the President shall not alienate any land under subsection (2) or (3) of section three without receiving any consideration, in money

for such alienation and ground rent for such land except where the alienation is for a public purpose..." (The Lands Act No.29 of 1995:272) The subsections referred to indicate the need to pay a prescribed fee to the Ministry of Lands. The prescription for payment of money is enough justification for huge sums of money to be paid at every level of the process in acquiring land in Zambia. Injustice both to poor people and their environment is justified by those who are able to pay the authorities and it is testified that a lot of money exchanged hands between would be buyers of land and government representatives or agents in form of corruption, a scourge every successive government has been fighting.

Even though land is vested in the President whose office is very distant from what happens on the ground, a lot has to be done in order to bring about meaningful justice in alienating land. Political cadres of every ruling party in government have taken advantage by selling land in and around urban townships to unsuspecting ignorant individuals in need of land for housing, in most cases. Little or no effort has been made to bring about awareness with regard to land issues. Individuals opt to buy land like they would purchase any other item from a shop to avoid the laborious procedures and payments involved. The end results of such short cuts have always been disastrous, particularly on the part of the purchaser of such land which could have been sold to more than one person. Burton Temfwe was sold land by cadres in 2010, later the absent owner was allowed by court order to demolish any structures which were coming in the area, Temfwe lost his money. (Temfwe 2014, 15th August) The law enforcers usually come in very late and only when one of the parties in the transaction complains. In view of the above described circumstances and culture of allocating land, issues of proper planning for infrastructure development such as roads, drainages, play parks, gardens and provisions of care for the environment are compromised, and the end result is unplanned settlements which bring about floods, disease, crime and even cost to human life. The above cited Act (the Lands Act No.29 of 1995) mainly serves the purpose of safe guarding the alienation of land, administration of land lease holdings and land management. All mining and mineral processing activities are administered by the Mines and Minerals Act.

3.6.3 The Mines and Minerals Development Act No.7 of 2008.

The latest law on mines and the processing of minerals in Zambia was enacted in 2008, when in fact mines had existed in the country for close to a century. That is to say, a lot was left to be desired in terms of environmental management and mining rights before the current law.

According to the law, “mine means any place, pit, shaft, drive, level or other excavation, and any drift, gutter, lead, vein, lode, reef, saltpan or working, in or on or by means of which any operation connected with mining is carried on, together with all the buildings, premises, erections and appliances, whether above or below the ground, that are used in connection with any such operation or for the extraction, treatment or preparation of any mineral or for the purpose of dressing mineral ores...” (Mines and Minerals Development Act.No.7 of 2008:65) The local communities in rural Zambia and townships are not aware of what a mine is all about in general terms. For the majority, mine refers to large scale copper or mineral extraction activity with an employment capacity for many people. Therefore, when it comes to environmental management and awareness, blame is only aimed at large scale mining companies, while small scale mining activities equally contribute to the degradation of the environments and various levels of air and water pollution.

In view of the definition of “mine” as cited above, Zambia suffers so much damage to its land terrain by various types of small mining activities such as those who quarry for sand, building stones and gravel. Besides copper mining in Zambia, individuals engage in extraction of the above mentioned (sand, stone and gravel) for construction at an alarming rate, particularly in and around towns and cities. Rain season flooding is partly caused by this kind of mining activities, and very little attention is paid to this destructive industry in terms of regulating and sensitisation.

The Act defines mineral as “any substance occurring naturally in or on the earth or in or under water and which was formed by or subjected to a geological process and includes any mineral occurring in residue. Stockpiles or in residue deposit, but excludes –a) Water, other than water taken from the land or any water body for the

extraction for any mineral from such water and Petroleum" (The Mines and Minerals Development Act No.7 of 2008:65-66).

Accepting the above mentioned definition of what a mineral is one begins to realise how much potential Zambia as a country has in terms of natural resources' development. All types of extractive valuable materials are regarded as minerals, although they come in various categories such as base, precious, radioactive and many others which are not mentioned in these groups. The need to educate the communities about care and value for all extracted minerals in any form is a must, if Zambia as a country is to mitigate environmental degradation and loss of species.

3.6.4 Environmental management plans.

The Mines and Minerals Development Act demands that all applications for a mining right, licence or permit must be accompanied by the environmental management plan. This kind of plan should have been examined and approved by the Zambia Environmental Management Agency (ZEMA) who is the regulators according to the Environmental Protection and Pollution Control Act. We are going to examine the components of an environmental management plan particularly for the purposes of sustainability of resources and nature around the copper mining areas.

3.6.5 .The Environmental Management Act No.12 of 2011

The Environmental Management Act No.12 of 2011 is yet another explicit law whose enforcement, and effect, if realised would bring sanity to Zambian copper mining towns, promote awareness on resource sustainability and care for God's creation, including human beings. Part of the purpose of the revised law on environmental management is, "...to provide for integrated environmental management and the protection and conservation of the environment and the sustainable management and use of natural resources..." (Environmental Management Act No. 12 of 2011:93). Suffice to note that in most cases, when polices refer to the environment, they only conceive of what surrounds humans and their benefits. Ecologically, the environment in this respect should be viewed as all creation, human and non-human, biotic, and non-biotic, and of course the physical features such as mountains, rivers, surface and ground water, climate and all that makes up the ecosystem. Lack of consideration of the environment in a broader sense poses a danger to God's

creation because humans would tend to manage the so called natural resources for sustainable anticipation of their livelihood without any consideration of creation as a community (Moltmann 1993:4).

The rest in the summary of the purpose of the Act/Law refers to sustainable management, and of course it is meant, "...to provide for the prevention and control of pollution and environmental degradation; and to provide for public participation in environmental decision making and access to environmental information..." (The Environmental Management Act No. 12 of 2011:93) The point at which the public is engaged in environmental sensitive issues is crucial. It has been observed that the public or communities are made aware of environmental concerns in their localities when a project such as a mining or a manufacturing undertaking is about to be set up in the area. Even then, the concerned community is only involved after an Environmental Impact Assessment (EIA) report has been formulated, and submitted to the regulator, the Zambia Environmental Management Agency. There is little or no change made to the report once the agency approves it for implementation. Few modifications in implementation may be made here and there without proper monitoring by the regulator.

Rolston III is right when he says that "perhaps what is as much to be managed is the human earth-eating, managerial mentality that has caused the environmental crisis in the first place" (Rolston III 2012:45). That is to say that what concerns governments in the third world countries is employment for their people without much consideration of their future generations, (although even the current generations may be affected) when the mines for example close down operations. The Zambian law on sustainable use means the use of the environment which does not compromise the ability to use the environment by future generations or degrade the capacity of the supporting ecosystems. Further, the law states that:

Sustainable management means protecting and managing the use of the environment in a manner that, while enabling human beings to provide for their health, safety, social, cultural and economic well-being: Safeguards the life supporting capacity of air, water, soil and ecosystems; maintains the life supporting capacity of air, soil and ecosystems, including living organisms, to enable future generations to meet their reasonably foreseeable needs; and

avoids the creation of adverse effects, whenever practicable, and where adverse effects cannot be avoided, mitigates and remedies the adverse effects as far as is practicable... (The Environmental Management Act No.12 of 2011:100).

The above stated definition of environmental management is anthropocentric in formulation and it is not surprising that the managers, humans themselves are the abuser, without whom ecosystems and their environmental make-up are not threatened. The dominium aspect or view on nature comes through by an assertion that humans have to reasonably use it for their benefit. The user/abuser and manager role by humans proves to be difficult to balance in case of the Zambian copper mining industry from an eco-justice point of view.

The usual practice has been to present an Environmental Impact Assessment (EIA) plan and a report for a project before it commences, usually to the government regulator, in this case the Zambian Environmental Management Agency (ZEMA). When the report is presented to the affected community, concerns may be raised on how the project would negatively impact human beings in a direct manner; little or no study at all is carried out by biologists and environmentalists to analyse the negative effects of the project on the ecosystems present in the area.

Anthropocentricity of most Impact Assessment reports is illustrated by the fact that there is no mention of mitigating measures for destroyed vegetation, for example. The so called benefits are mostly for economic and social ends, thereby rendering the concern for sustainability requiring no attention. Sustainability in this case should be for nature, humans and non-humans, biotic and non-biotic members of the Earth Community.

3.7. The Environmental Impact Assessment requirements.

Zambian law on environmental management demands that any person(s) or organisation applying to carry out a project which would affect the community, the environment and nature, must submit the Environmental Impact Assessment (EIA) report to the agency authorised to approve such reports.(The Environmental Management Act No.12 of 2011.

According to an expert in mining and environmental issues Chris Muyunda (2013) an Environmental Impact Assessment (EIA) should take the following into consideration:

- Nature conservation (National parks)
- Restricted areas (graveyards and heritage sites)
- Landscape and cultural heritage protection
- Lands change, displacements, conflicts
- Water quality
- Control of soil contamination
- Noise
- Waste disposal
- Chemical control.

Muyunda further stated that to achieve a comprehensive Environmental Impact Assessment, a project developer or investor has to undertake the following steps:

Step One—The prospective investor has to make an assessment on what impact the project would have on the environment, having considered the kind of project they intend to carry out, and what kind of environment the project would be situated in. An Environmental Impact Assessment in this case would not only consider the impact on human beings, but on features like rivers or water sources, vegetation, air quality, animal life, communication systems such as roads, railway lines, industrial and commercial infrastructure such as power lines, telecommunication towers and lines, and many other things (Muyunda 2013).

Step Two: - Having considered the impact on biological, physical and social environment, the prospective project developer is to carry out a survey. At this stage the developer goes to the community to get the views of the affected people. The community where the project is to be situated has to fully participate so that they exchange views with the investor. According to the Zambian Environmental Management Agency (ZEMA), this is a public hearing which is even advertised in the press (media) before it is held (Council of Churches in Zambia. 2013.7). Adequate sensitisation should be carried out for the people in the community to understand the environment around them so that they know how best to protect it from adverse effects caused by mining in the case of the Copperbelt or any place where mining is

being carried out. Of course the kind of sensitisation being referred to here is an educational responsibility by civic organisations, the church, the government organisations, and not the prospective investor. The above mentioned educational meeting with the concerned community might be carried out following an advertisement for a public meeting or scoping (Muyunda 2013).

Step three: - The final step brings in technical experts to conduct an Environmental Impact Assessment (EIA) study; taking measurements of the environment, pictures of rivers and other physical features in what is known as a baseline survey. (Council of Churches in Zambia, 2013.7) Projections are made on what would happen when the mining project, in this case starts. Mitigation measures to be undertaken are put in place, based on what the technicians have advised the investors.

An Environmental Impact Assessment (EIA) is only approved after it has been presented to the public for comments. The problem lies with people of the concerned communities who know about the assessment, and even if they knew, what would they look for in order to criticise it constructively. The developers take advantage of the high illiteracy levels and lack of information among the affected communities.

According to Council of Churches in Zambia (CCZ) seminar report of 2013, there has been conflict between the community and first Quantum Minerals, who are the managers of Kalumbila Minerals Limited in chief Musele's area in the North western province of Zambia, about 200 Kilometres from the Copperbelt. The conflict is over land, and the chief has demanded that the Environmental Impact Assessment report be translated into the local language for these subjects to understand the report. The above cited experience is an example of the effects of mining on life style and ecosystems in Zambia by human activity in the name of investment for development.

3.8. An ethical assessment of compliance with the policies.

Zambia as a sovereign country has adequate laws as cited above to protect land, its people and the ecosystems which support life in totality. It has been mentioned before, that having laws or policies in place is one thing, and yet implementing such policies is another issue. The question of whether or not Zambia has the capacity to institute an effective inspectorate in terms of monitoring the mining projects on the Copperbelt can be addressed by an industrial inquiry. Lack of funding capacity

compromises the essence of approving Environmental Impact Assessments which are carried out for the sake of satisfying the requirements of the law, and not the needs of the affected area and its inhabitants. It is unethical to formulate a law which cannot be enforced in practice due to inadequate funding and lack of man power for the inspectorate of Zambia Environmental Management Agency (ZEMA) to carry out its work effectively.

In the year 2012, eight thousand (8000) residents of Butondo Mine Township in Mufulira on the Copperbelt were affected by Mopani Copper Mines heap leaching mine plant. Residents complained of massive pollution when acid mists engulfed the residential areas and allegedly affected people's health. (Post Newspaper of March, 2012, Issue N0.2946) The response by the regulator was to close the plant by Zambia Environmental Management Agency, who regulates pollution control. This was only after residents complained and took it to the streets to protest. One would hope that it is the moral responsibility of the regulator to carry out inspections and monitor the levels of pollution and any environmental disruptions without receiving complaints or waiting for people to protest.

Human beings protested at the point when they could not withstand the pollution; meanwhile the fate of insects, small animals, vegetation and the rest of the ecosystem in and around the area was not ascertained. The proper condition of biodiversity and nature could only be assessed by environmentalists and ecologists if they carried out an assessment to account for the degradation of nature in and around the affected area. That is to say, that there was an anthropocentric approach to the situation and Mopani Copper Mines could have been operating within the agreed terms depending on the Impact Assessment and mitigation plan they presented to the Environmental Management Agency (ZEMA).

Earlier in Jan 2012, residents had threatened to sue Mopani Copper Mines over the issue of pollution. Experts in mining and environmental issues strongly suspected that the mining company had introduced an in-situ leaching, a type of mining which had been widely condemned by the international community including the World Health Organization(WHO), and the mining companies that put the health of the people in areas where they operate first (Post News Paper, 19th Jan, 2012).

In-situ leaching is a type of mining where acid is introduced to the rock while it is still in the ground so that oxygen is removed from it to leave pure copper and all they have to do is simply dig it out. The process is cheaper for the company, but destructive to people and the environment because acid goes into the ground to contaminate the water table, water sources, and the fumes which are released are very dangerous to humans and the environment.

The mining company did not comply with the law which specifies that the levels of acid mist released should be below 1.0 mg/m. However, the company claimed it had met the minimum requirements according to its test report. What was not reported in the article is what levels of acid mist the regulator discovered being released which led to protests by residents resulting in the closure of the mine. Suffice to say that maybe those details were for the consumption of the mining company and the regulator, and not for public consumption. Efforts to prosecute the mining company have proved futile in a culture where corruption is the order of business, and those without money usually suffer at the hands of those with money.

3.9. Enforcement of the Law

The Environmental Management Act provides for the owner of a project to take all reasonable measures to mitigate any adverse effects which might not have been contemplated in the Environmental Impact Assessment (EIA) in respect of the premises or the project. (The Environmental Management Act. 2011:155). That is to say, that on moral basis each developer, investor or project owner has an obligation to be on the lookout for the unexpected while the regulator, according to the law, must carry out environmental audits of all activities that are likely to have an adverse effect on the environment (the Environmental Management Act. 2011:155).

We strongly contend that each party should carry out its moral obligation, with or without resources because the concerns of pollution, land degradation, life threatening and industrial hazards border on interfering with global order in ecological terms. The Zambian law further states that “the Director General may, where the Director General considers that it is necessary to conserve, protect and

enhance the environment and natural resources in an area, serve a protection order on the owner, manager or person in control of the premises.” (The Environmental Management Act.No.12 of 2011:156).The person or company who fails to comply with the above provision when the protection order is served on him/her, is liable, upon conviction to a fine or imprisonment. The fine of course is stated in penalty units, and the prison sentence shall not exceed one year, or both punishments can be applied on the person.

It has to be emphasised here that the law is very serious regarding the protection, management and value of land, biodiversity in ecosystems, and human environments in Zambia, and the Copperbelt in particular. As stated above, the problem of capacity to implement policies has always been a challenge for the regulating authority.

3.10. Conclusion

Zambia celebrates fifty years of political independence in October 2014, which is supposed to be a Jubilee year, a year of rest for resources, including land. It is a golden Jubilee, the fiftieth year when land and prisoners serving custodial sentences would have rested and set free respectively. The country's copper mines were opened long before 1964 (the country's year of independence), and they have been operating with increased production of the mineral by more advanced, but hazardous methods. While the traditional copper smith in *Lamba* land could only make a spear, a hoe and other primitive tools for sustenance of the family, mines today operate day and night to feed western manufacturing industries for fire arms, phones, building materials, motor vehicles and many other metal products. Consumerism without limits is the reason for higher demands of finished copper products. Producers of commodities in industrialised societies make astronomical profits by ever-expanding consumption, and in order to meet this growing demand, natural resources are depleted at an unsustainable rate (SAGE Publications, 2012:151).

When the mining industry could not be controlled by independent Zambians, it was nationalised with a view to maximising income and benefits for Zambians. The nationalisation did not solve the young independent country's problems at all, and re-privatisation was a result, in order to re-capitalise the industry. New owners have not

taken up the corporate social responsibilities for the workers in issues of education, health, recreation, roads, water, electricity and skills training for mine workers and their children. These responsibilities have been relegated to the local government councils, utility companies like the Zambia Electricity Supply Corporation (ZESCO).

What was “from cradle to grave” corporate social responsibility welfare policy by Zambia Consolidated Copper Mines (ZCCM) is now history, rendering the environment in mine townships impoverished, uncared for, dirty and in most cases with a vandalised infrastructure. Social problems such as prostitution, crime, divorce, illicit brews and the like have become the order of the day. Trees on the outskirts of townships have been cleared because very few of those who have survived retrenchments by the new mine owners (who decided on the size of their workforce), can afford the high electricity tariffs. Nature in Zambia and on the Copperbelt in particular is strained by cheap mining activities such as Open Pits, in-situ leaching, spillage of high concentration of heavy metals and chemicals into the wild and the continued demand for copper in industrialised countries. The policies to protect natural resources, human and non-human life were belatedly enacted, and there is inadequate funding from the central government to enable the Zambia Environmental Management Agency (ZEMA) to enforce the law and protect the much needed nature, in order to protect Zambians and their environment. Zambia was declared a Christian Nation (Republic of Zambia Constitution 1996:7) and the country is yet to realise the declaration even in the manner nature is treated. The role of citizens in caring for earth is proposed in chapter five of the study.

The following chapter focuses on portions of Christian scripture in order to bring out (exegete) what the creator of the cosmos would say about creation, as a model after which Zambians and the global village need to care for the planet earth in order to mitigate the already escalating ecological crisis.

CHAPTER FOUR

ECOLOGICAL HERMENEUTICS

4.1. Introduction.

The purpose of this chapter is to investigate the scripture in view of the assertion that the Bible and its users, Christians in particular, are co-responsible for the ecological crisis the globe is faced with today. An example of such an accusation is Lynn White's statement quoted by Victus, "...that western Christianity was peculiarly adapted to encourage the growth of exploitative attitudes towards the natural world." (Victus 2014:16). The accusation includes the way certain portions of the Bible are interpreted. Eco-theology is an enterprise of studying ecosystems, the interconnectedness and interdependence of the Earth Community from a theological perspective, by which a faith community is exposed to appreciating non-human life and the natural world. Ecological hermeneutics from a theological point of view is used to interpret relevant texts of the Bible taking into consideration primary elements such as the historical context, grammar, words and sentences of a given text. The principles of eco-justice composed by the Earth Bible Team are selectively applied in order, "...to take up the course of justice for earth and to ascertain whether earth and the Earth Community are oppressed, silenced, or liberated in the text and to develop techniques of reading the text to discern and retrieve alternative traditions where the voice of Earth and Earth Community has been suppressed" (Habel 2008:1-2). The Earth Bible Team consists of individual contributors to the Earth Bible project who have "...closely listened to ecologists and developed a set of principles to re-read the biblical text from an eco-justice perspective" (Habel 2001:7). The project works to identify passages which may have contributed to the earth ecological crisis and to "uncover those traditions which have valued earth, but have been suppressed." (Habel 2001:7) The Biblical text is the basis of such an interpretation or exegesis, the following are the eco-justice principles which are hermeneutically applied where ever one or a number of them are relevant in the text (Habel 2000a:5):

- The intrinsic worth of earth,
- Earth interconnectedness,
- The voice of earth,
- The purpose of each component in Earth Community,
- The mutual Custodianship of Earth Community,

- The resistance of earth to any oppression.

A text is read with questions such as suggested by Habel: "...is earth viewed merely as a subject with a voice or as an object to be exploited." (Habel 2000a:5). Relevant texts from the following sections of the Bible are used: the law (*Torah*), Wisdom literature, the Prophets, the gospels, the epistles and Revelation. Genesis, wisdom traditions, some Prophets and the New Testament are used with one or a number of the above mentioned principles, without putting aside the text's historical context. When all creation is implied in association with other creatures, the capitalised Earth is applied. Lower case of earth refers to soil or land.

4.2. The approach

The approach proposed by the Earth Bible Team consists of the following principles: suspicion, identification and retrieval in order to pay attention to anthropocentrism, the voice of earth and to address any one of the six principles cited above in the text.

4.2.1. Suspicion

According to this approach proposed by the Earth Bible Team, the text is read with suspicion in that the text is likely to be inherently anthropocentric and or has traditionally been read from an anthropocentric perspective (Habel 2000a:5). That is to say, that a text in its usual reading depicts nature as an object and humans as subject(s), who regard anything not human as resource for human oppression and depletion.

According to Habel and the Earth Bible Team, this first step in ecological hermeneutics seeks to investigate the anthropocentrism (as opposed to anthropogenic or anthropotopic) of the text in the author's view and that of the reader. This is the eco-justice principle of intrinsic worth/value for the Earth and Earth Community at work by using the first step of suspicion.

4.2.2 Identification.

The ecological hermeneutics approach demands for the exegete to identify with the earth and its inhabitants, the Earth Community empathetically. Habel in exploring ecological hermeneutics says “identification with earth and members of Earth Community raises our consciousness to the injustices against earth as portrayed in the text, both at the hands of humans and God” (Habel 2008:5)

That is to say, that the interpreter has an obligation to feel for the wrongs and injustices which earth (creation) has suffered in most cases at the hands of humans, and at the hands of God as a result of human wrong doing. The narrative in Genesis 3 is a good example of how earth would produce thorns and thistles, and experience enmity between serpent’s brood and that of the woman due to human disobedience. Ecological hermeneutics reveals the fact that the earth and its components resist and react to injustice against them; and in most cases the prime abuser, humans suffer as the earth resists. Human beings are the interpreters, and their role to identify with the earth in a text cannot be over emphasised.

4.2.3 Retrieval

The approach at this step has two characteristics according to Habel: “one related to the prior process of suspicion and the other to the process of identification.” (Habel 2008:5). It is called retrieval because the text may reveal some suppressed or hidden non-human characters of the Earth Community by reading it through the eyes of eco-justice principles of intrinsic worth, interconnectedness, mutual custodianship or any one of the above outlined principles. The approach being referred to in the three steps of interpreting a text enables the exegete to appreciate the Earth Community, humans included; Habel and the Bible earth team call it a radical ecological hermeneutics.

4.3. Eco- justice in the Law (the *Torah*)

4.3.1. The book of Genesis

Some portions of the first five books of the Bible, namely Genesis, Exodus, Leviticus, Numbers and Deuteronomy are considered in this part of our work. More passages from the book of Genesis are used to give a basis of the human community in terms of its dealings with other members of the Earth Community. Genesis means ‘origin’. “The Hebrew word *beresit* means beginning”(Guthrie(ed.) 1970:79).The book of Genesis indeed serves as a record, at least from ancient Near East mythology, of the origins of humanity, creation as a whole and the nation of Israel in particular. Solomon Victus rightly says, “the fundamental discussion of Ecology begins from creation...There are two major accounts of creation in the book of Genesis. One is...believed to be written in the context of a water resource area... (1:1-2:3), another is written in the context of a dry environment, probably in Jerusalem area (2:2-24)” (Victus 2014:49).Karl Barth considers the two creation accounts in a succession of one after the other, thus “according to his interpretation ‘the creation appears in the first account’ as the external presupposition of the covenant, in the second, the covenant as the internal presupposition of creation.” (Webber 1953:122)That is to say, the first account is a plan of the second. He further asserts that “what we have before us in the first account is, as it were, a work of tremendous preparation, yet carefully planned, completely thought out and thoroughly comprehensive as well” (Webber 1953:122). In Barth’s view, the first account is complemented by the second creation story, thereby forming one complete account though by two different traditions. The view by some interpreters that the creation of humanity at the very last puts humans at the centre of creation is disputable when we consider their vulnerability. Humans could not survive before the rest of creation came into existence. Victus contends that, “...the anthropocentric world view, in which heaven and earth were made for the sake of human beings, is Unbiblical,” (Victus 2014:50), and Moltmann adds that “...according to the Biblical Jewish and Christian traditions, God created the world for his glory, our love; and the crown of creation is not the human being; it is the Sabbath.” (Moltmann 1985:31)

4.3.2 The dominium command and Genesis (1: 26-28)

The declaration by the creator to make human beings in “their” image and after “their” likeness becomes the origins of subjection and objection between humans

and the non-human creatures. The following passage from Genesis1:26-28 contains the ever standing basis of human domination of earth and the Earth Community:

Then God said ‘let us make human beings in our image, to be like ourselves. They will reign over the fish in the sea, the birds in the sky, the livestock, and all the wild animals on the earth, and the small animals that scurry along the ground’. So God created human beings in his own image. In the image of God he created them; male and female he created them. Then God blessed them and said, ‘Be fruitful and multiply. Fill the earth and govern it. Reign over the fish in the sea, the birds in the sky, and all the animals that scurry along the ground’ (Genesis 1.26-28) (New Living Translation).

The background to this passage elaborates how the universe was without form until it was given form or order by separating waters from land, light from darkness, day from night, land from sky, dry land from water bodies such as seas and rivers; light to rule the day as the sun, and lights to rule the night as the moon and stars. It follows that life on earth was only introduced after all such preparations. According to the first (Genesis 1) creation account, man is only created at the very last of God’s creative activities.

In the passage above, suspicion of anthropocentricity of the text is not doubted at all. Humans are declared rulers of all life on earth, by so becoming Earth and Earth Community become objects and humans are declared subjects. The fact of anthropogenicity of the text cannot be ruled out in this particular narrative. This is because the text belongs to the mythologically composed part of scripture. Deane-Drummond confirms the assertion by the British historian Arnold Toynbee who claimed that, “the command in Genesis 1:28 to have dominion and subdue (Reign) the earth both permitted and directed humanity in exploitative attitudes to the environment” (Deane-Drummond 2008:82). Following the enlightenment the Christian community has been blamed for the dominion aspect through the advancement in science and technology.

The text under consideration indicates that non-humans were created before human beings. We are able to identify the fact that without non-human creation such as land, vegetation, water, light and the rest; man has no basis of living on planet earth.

The text proves that human beings, although they have reigned the earth with impunity, they are part of the rest of the Earth Community. In fact human life becomes dependent on the rest of the Earth Community without which male and female human beings would not survive. Humans, though uniquely created as those who are the only ones of the creatures after God's likeness, in the image of God (*imago Dei*) do not have the absolute right to take the centre stage of everything to the extent of depletion of the species.

The process of retrieving the voice of the earth is difficult to discern in the text when humans are declared rulers over the rest of the Earth Community. It is a moment when a ruler like a President or a king is being enthroned or sworn in, in full view of his/her subjects. Those to be ruled cannot voice out anything, until they begin to experience the leadership of a ruler. The earth is silent and yet to voice out its pain.

The only silent voice of the earth is a detachment between the sea, the sky creatures and humans, but humans get total control over those members of the Earth Community which live away from humans such as those in waters and skies. As time went by, humans have invented and devised means and ways of having access to the domain of most members of the Earth Community, including those underneath the earth such as minerals, fossils, gases and many others. Science and technology has caused human beings to claim dominance over the earth to the extent of self-destruction.

It is evident that the principles of intrinsic worth and interconnectedness between humans and the rest of the Earth Community are realised in the text. The fact that God created non-humans first and human beings later with a proclamation of the dominium command is an expression of interdependence and mutual custodianship among the Earth Community. However it is a known fact that, "we human beings are not the only ones who deserve a fair share, but we are among those who do and in addition, we alone (to our knowledge) have the ability to make decisions about sharing along lines other than 'might make right', both for the needy of our kind as well as other vulnerable species" (McFague 1993:5). McFague asserts, and correctly points out other species besides human beings are in need of consideration for continued sustainability. Therefore, the dominium command is not an excuse for

abuse of non-human species by human beings, rather humans should work for their survival by tilling the land; eat seeds and fresh produce, while animals eat grass and plants. Humans have a responsibility over creation in terms of how they co-exist with the rest of the Earth Community.

4.3.3 The fall of the human being (Genesis 2-3)

Following the proclamation of dominance, as construed by human beings in the previous section, other members of the Earth Community seem to directly fall under the rule of human beings themselves. Although this part of the account of creation in chapter one of Genesis spills over to chapter two, the main issue at hand in this section is to discern hermeneutically the essence of the happenings in Genesis 3, in view of eco-justice.

The background of this story is that of a scenario when no rain had fallen on the ground, since human beings were not created yet, there was no tilling of the soil (Newsom 2000:63). The story is identified with the Yahwistic tradition in which the creation story begins with the human being, which is more anthropocentric than the first story of Genesis chapter one. Newsom asserts that, “the story is about the origin of anthropocentrism itself,” (Newsom 2000:62), which Newsom further calls the original sin.

The creation story in Genesis chapter two from the onset portrays so much of human centeredness, but the interdependence of humans and other creatures permeates the events in as much as human beings become central in the narrative. The geographical narration of the garden which human beings were given to cultivate is all described to the beauty of the occupier (humans). Newsom’s indicates that “though the description is not needed for the plot of the story, it serves to disclose the character of the storyteller, letting us know what he thinks worth telling” (Newsom 2000:64).

The physical features of rivers and minerals mentioned in Gn 2:10-14 are still an emphatic indication of the benefits of humans on earth. In Gn 2:15, the human being Adam is placed in what is termed as a garden, not necessarily in the sense of the

tilled garden of vegetables as we know it today, but rather “a forest, a place of trees and fruits. The kind of working and keeping that is suitable to a forest is rather different from that needed to grow vegetables in rows.” (Newsom 2000:64) Therefore the human person here is given the duty to interact, so to say, with the rest of nature. Victus argues that “the text 2:16-17 says they are not only given rights but also given more warnings too...” (Victus 2014:51). In the creation account attention is still centred on the human being. Adam gives names to all animals, birds and the rest of the living creatures on earth, a confirmation of human reign over the Earth Community; and loneliness is said to be the main reason of bringing forth other living creatures. The likeness of God in man was not complete without the woman. In Gn 2:20 the story teller expresses the need for the male human being to have a companion after his likeness.

The moment God said it was not good for the man to be alone, and that he would make him a helper who was just right for him (Gn 2:18), we begin to see how human beings identify with the rest of creation, through the eco-justice principles of intrinsic value, interconnectedness, purpose and mutual custodianship of all the living and non-living in the Earth Community. Adam and animals were created from earth depicting a commonality and interdependence. The phrase, “it is not good for man to be alone” (Gn 2:18) by the creator, and then all other creatures were created, becomes a certificate for human beings to identity with the Earth Community.

The naming of living creatures by human being does not only portray rulership but identity as well, of humans themselves with the rest of creation. Living things responded and continue to respond to human beings by their names (if tamed), and are known by the same names in the diversity of human languages and cultures. The male human being is joined by the female human being, whom he (Adam) called woman. She was taken from the material of man who was from earth (*adamah*) so rendering the woman as having been taken from earth as well. They were both naked, still identifying with the rest of the animals which have no clothing up until today.

However, discrimination comes in, in the third chapter when the cleverest of the living things in the “garden”, the snake comes on the scene. The discussion between

the woman and the snake in Genesis 3:1-5 becomes the turning point in the closer relationship between human beings and the rest of the living creatures on earth, when the woman is seduced into believing that the forbidden fruit was actually an eye opener for human beings. The narrator indicates that once the woman is convinced and gives the fruit to the husband, their consciousness of being naked is realised, "...and this self-awareness is the pre-requisition for the experience of shame. That the quality of self-awareness is also what distinguishes us from the other animals." (Newsom 2000:69) Creation is at risk by the mere difference fostered by the self-awareness of human beings, who fall back on fig tree leaves for covering their nakedness. They still depended on other members of the Earth Community, the trees in this case, to cover their shame. Blame is put on the snake by the woman, who in turn is blamed by the man when he appears before God to account for his disobedience. We agree with Margaret Barker's assertion when she says "creation began to degrade when Adam and Eve disobeyed" (Barker 2010:237). The aspect of intrinsic worth in plants which gave Adam and his wife the covering over their shame is noted in the text. The fig tree represents all vegetation in terms of how much cover they give to human beings, the soil and all living creatures. The Earth Community components still depend on each other for survival, although enmity ensued between the woman's offspring and that of the serpent.

In their actions "...human beings have disrupted the original creation and taken for themselves the power to distinguish what is desirable and what is not" (Newsom 2000: 69). That is to say, that they have a moral choice of good and bad, wrong and right and have taken responsibility for their choice. Could this be what their creator protected them from by forbidding them not to eat of the tree of the knowledge of good and evil, or it was the most harmonious way of life God had planned for his creation?

The consequences of human action against God's instructions brought about suffering for both human beings and the rest of the Earth Community. Although the voice of the non-living creatures cannot be heard in the pronouncement of the punishment, there was response at the command of God to the earth to grow thorns and thistles which would harm human beings' relationship with the land. The silent voice of the rest of the Earth Community is heard when the curse is pronounced

upon human beings, the snake, and the land, (Gn 3:14-19). A voice of blame shifting as seen between Adam, Eve and the snake, the last of which of course was not given a chance to speak as to why it did what it had done to the woman.

Newsom estimates that the above account of the fall of human beings into self-centredness should not be enough reason for losing hope and further says that, “the story of the emergence of self-awareness and self-consciousness, the recognition that one can make choices, is also the story of the birth of moral agency” (Newsom 2000:72). It is out of such a moral agency, the free will to choose that human beings have to make it in their lives for better or for worse, however a choice of where one is born and brought up is not granted until the human person is born and grows up to an age at which they can choose. Those who are born vulnerable, say for instance, in highly indebted poor third world countries have a limited choice of what they want to become. The imbalance in eco-justice on the side of human beings is unavoidable. Land and vegetation suffer the consequences of human choice, although much of the suffering is mostly upon those living in countries and communities with minimal or no means of survival.

Finally, to earth where humans were taken from, as the subject in this portion of Genesis account, they return. The voice of the earth should be ‘welcome back my children’, and the earth does not lose anything, for everything grows out of it, in affirming Wurst,s words that “...although we always belong to the earth, we are most completely one with the earth / soil when we return to our origins, when we are ‘grounded’ through our death and decomposition” (Wurst 2000:103). That has remained a fact of life, for all creation groans in pain like in childbirth until now (Romans 8:22). All creation includes the living and the non-living, in the Earth Community. Human beings, the man and his wife were banished from God’s presence in the Garden of Eden. This is alienation of human beings from God, but not yet forsaken to die, but to till the land for survival. Humans were still depending on the land.

4.3.4 Human reproduction (Genesis 4-6).

The fourth chapter of the first book in Christian scriptures, the Bible begins with the reproduction of the first human beings Adam and Eve. Two sons Cain and Abel are born and they divide themselves between two occupations: One, Cain becomes a tiller of the soil and Abel becomes a tender of animals or livestock.

But Gunther Wittenberg observes that “a reading of Genesis 4 from the perspective of the earth will reveal how this alienation took place” (Wittenberg 2000:105). The narrator records how the tiller of the soil, Cain was disappointed with his unaccepted sacrifice and became jealous of his brother, Abel whose sacrifice was accepted. The death of Abel at the hands of Cain was the result of such disappointment and rivalry; all this happens outside the Garden of Eden.

When Cain killed Abel, it is recorded in the text that God challenged Cain with regard to the whereabouts of his brother Abel. Wittenberg says that a similar question God asked Adam when he hid in the Garden of Eden is what Cain is asked. “Where is your brother, where is Abel”? (Genesis 4:9). Cain’s response does not help him to run away from God’s searching questions. God proves to Cain that a voice has cried to God from the earth or soil which ‘swallowed’ his brother’s blood. (Genesis 4:10). What follows is further banishment of the human being, Cain, and further curse of the soil to the extent that no matter how hard Cain would till it, he would not produce enough to eat.

From an eco-justice perspective, it is clear that human actors have increased from Adam and Eve, to Cain, all in defiance of God’s will. Human beings continue to act as though they are the centre of the Earth Community which they continue to indiscriminately dominate.

According to Wittenberg, the professions of Cain and Abel had nothing to do with the non-acceptance of Cain’s sacrifice by God, which leads to conflict between the two brothers, but that Cain’s produce from which he sacrificed came from a cursed soil which could not produce adequately, while his brother’s animals were thriving (Wittenberg 2000:107), but a question may be raised as to whether this was the first sacrifice of crops the family had made to God, or earlier crop sacrifices were

accepted by God or not. According to the ecological hermeneutics, the principle of intrinsic worth/value of the soil seems to be compromised, because animals in the story have more value than the land, even though livestock depended on the land for survival. Within the human community there is lack of interdependence when one is killed by the other. Cain defied the principle of mutual custodianship when he said, “Am I my brother’s keeper” (Genesis 4:9).

However, the voice of earth is heard by God and communicated to the wrong doer Cain. The earth from where human beings, like animals, were created has a voice to speak out to the creator when blood is spilt back to it in a way that is not pleasing to God. Human life is sacred, and it cries to God who instituted and authored life when its blood is spilt, no wonder God forbids Noah not to eat any meat with its life blood (Genesis 9:4). The life of Abel in death identifies itself with the earth when his blood cries out to God. Nature has a voice when abused and humans may not hear such a voice unless God permits them to hear.

The genealogy of Cain who carries a mark from God to protect him is listed in Genesis 4:17-24. It is the descendants of Cain who started to make tools of iron and copper, and who first played the harp and the flute (Gen 4:19-22); but land is still the basis of survival even for the banished man Cain and his descendants.

The birth of Seth in Genesis 4:23-26 is a new beginning for the genealogy of Adam. Seth is said to be very much like his father Adam (Genesis 5:3-4). The Genesis story at this stage indicates the increase in wrong doing among the people who dwelt on earth. Noah who is from the genealogy of Seth finds favour with God.

4.3.5 Human wickedness.

Genesis 6:5-8 records that “the Lord observed the extent of human wickedness on the earth, and he saw that everything, they thought or imagined was consistently and totally evil. So the Lord was sorry he had ever made them and put them on the earth. It broke his heart. And the Lord said I will wipe this human race I have created from the face of the earth, yes I will destroy every living thing-all the people, the large animals, the small animals that scurry along the ground, and even the birds of the

sky, I am sorry I ever made them and put them on the earth..." (New Living Translation 2004)

God regretted having created human beings. In view of the ecological hermeneutics, it is clear that human beings and the entire Earth Community were to be wiped out except for Noah's family and pairs of each living species which he was instructed to preserve in the Ark for procreation. In Genesis 9:11, however God regretted having destroyed all flesh by the waters and He said: "Never again will flood waters kill all living creatures; never again will a flood destroy the earth" (New Living Translation).

The soil was already cursed, and apparently the Lord would only make use of what was already in existence. Wrong doing by humans cost all creation to be wiped out, except a few people (eight) and the pairs of each species of living things, small and large. The creator had to re-create, but this time around from that which already existed. Chapter 6 to 11 of Genesis carries the story of Noah and the flood, generations after the flood and how Noah was blessed and told to fill the earth (Genesis 9:1-4) and rule over all creatures. This is exactly what God told Adam in Genesis 1:26-28. The dominium command is repeated, but all to the suffering of the non-human and the rest of the Earth Community. Victus says, "... God does not want to destroy the earth again, so he made a promise with a Rainbow as a symbol of his guarantee." (Victus 2014:53). The covenant was to Noah, his children and the rest of creation according to Gn 8:21; 9:813.

Although the concern for pairs of living things to be preserved is identified with the Priestly source, both human and non-human preservation was a concern for God. Earth Community is preserved for continuity. It has been noted above that Genesis 1 to 11 cannot be located in historical terms because the narratives are regarded as pre-historical and mythological.

4.3.6. The migrant Abraham (Genesis 12-49).

The story of Abraham who is called to be the father of a great nation, and through whom all people of the earth would be blessed is believed to have started around 1200BCE. It is the beginning of both Israel as a nation and the Christian history in terms of faith lineage. Judaism, Christianity and Islam as religions trace their origins

from the story of Abraham and his descendants, and are referred to as Abrahamic faiths.

From the eco-justice perspective, the narratives of Abraham and his descendants depict land and environment as active participants as people move in search for available land for crops and their livestock. Gene Mcfee asserts that, “the story of Abraham sets into motion an extensive narrative of land use and human competition for that use indicated as launching and justifying the western world’s exploitative attitude and behaviour towards the environment.” (Mcfee 2000:159). Land is exposed to commercial and political conflict between tribes, and it serves as a basis of wealth for emerging nations starting from the Middle East into Europe, Asia and the Americas.

The setting of Abraham’s stories and his descendants in the Middle East, starting from Mesopotamia to settle in Canaan when Abraham and his wife Sarah were both advanced in age, and the promise of land to Abraham is striking and in reference to Genesis 1: 28, a blessing upon Abraham and his family is part of the promise. In our quest to appreciate nature, particularly land and everything thereof, it is important to note the place or role of land, or the natural world in human successes.

Together with the promise to multiply in number by way of human reproduction, land was also part of the reproduction blessing because more descendants from Abraham meant adequate land where to settle them. Abraham becomes a chosen one family, to grow into a nation, and that all nations and people would be blessed through Abraham.

Of course it was not by mere contact and making alliance with Abraham that rulers and other people were blessed, but this was a prophetic promise pointing to first, the founding of a Jewish community, and second, the establishment of the worldwide Christian family whose ancestral background dates back to Abraham, and third the establishment of the Ishmaelite’s, or the Arab world as it were, whose matriarch is Hagar the Egyptian slave maid of Abraham.

Mcfee (2000) introduces the story of Abraham in Genesis 12 as “...the most important passage in the Hebrew Bible concerning the interaction of human beings

and natural environment." (Mcfee 2000:158) The passage in Gn: 12 depict the second order of the dominium command to subdue and fill the earth as in Genesis 1:28. As cited above, the blessing and promise to multiply and prosper did not come without the participation of land, water, vegetation, seasons and the elements of the natural world.

From an eco-justice point of view, the earthly environment played an important role in Abraham's migration as it was, and settlement in Canaan. The chosen and blessed man and his family had to displace or conquer the Canaanites from their land, and according to the principles of eco-justice the natural environment was so passive in the successes of Abraham. According to Mcfee, " the story of Abraham sets into motion an extensive narrative of land use and human competition for that use that many environmentalists have indicated as launching and justifying the western world's exploitative attitude and behaviour towards the environment "(Mcfee 2000:159).

The migration and settlement of Abraham with his relatives such as Lot and their offspring incorporate most, if not all the principles of eco-justice: The value of earth, the interconnectedness of the Earth Community by way of human's dependence on land and its components, without which migration and multiplication would not be a blessing to be realised. The principle of purpose for each component of the universe can clearly be seen in the story of Abraham and his descendants. However the voice of the earth is silent because domination by humans is in motion.

Mutual custodianship for the Earth Community would only depend on the agricultural method humans used because technology had not yet advanced. There was plenty of virgin land still for new settlements and high yields of crop and animal production. Chemical fertiliser had not been introduced, and nor were pesticides and other ecologically dangerous chemicals. The principle of resistance by earth was not yet at play in the story of Abraham because subjugation of land and other components of the Earth Community had just taken off from Mesopotamia towards Canaan and beyond.

4.3.7. The promise of land in Genesis 17 and 23 (Exodus and Numbers).

The Priestly source (P) in Gn 17:8 portrays the gift of land to Abraham “as an everlasting possession” (*Ibid*). Land becomes an object of selling and purchasing between Abraham and Ephron the Hittite, and as the transaction gets in motion the aspect of ownership by Abraham is promised by God (Gn 23). Abraham first buys a portion of land from Ephron for the purpose of burying his wife Sarah, and it becomes a burial place for all the patriarchs (and the matriarchs).

Suzanne Boorer wonders whether or not the promised gift of land by God to Abraham, Isaac, and Israel as owners was to be used in any way and manner they liked. To clear the doubt, Boorer brings in the Priestly material of Numbers 13-14. (13:1-3a, 17b, 21, 25-26, 32-33; 14: 1a, 2-3, 5-10, 26-27a, 28-29, 35-38) (Boorer 2000: 180). The Exodus account of the movement of the Israelites from Egypt to the Promised Land qualifies the promise to Abraham and his descendants in Genesis 17:8. However, “the gift of all land of Canaan would be granted to Israel by God only when they value the land and ensure that it will be valued and appreciated by those to whom God gives it” (Boorer 2000:181).

In the book of numbers 13:1-3, 7 we see the scenario for the aspect of valuing and appreciating the Promised Land. Tribal leaders were sent to spy on the land as God had directed. Only Joshua and Caleb among the tribal leaders sent to explore the land of Canaan brought a positive report about the land promised by God. The rest were negative about it and could not be allowed to enter it. Numbers 14: 37 have it on record that they died of plague with the whole generation which they misled.

4.3.8. Conclusion to Genesis.

All in all, it is evidently shown in the account of Genesis that land and its components such as water, vegetation, animals, soil and other inhabitants of the Earth Community are the basis of humanity’s relationship with, and worship of their creator. The promises of land itself and many descendants prove the point in the relationship.

The relationship with, and worship of the creator (God) became appropriate whenever land was in good use by humans and when it benefitted them. All the blessings of Jacob in Genesis 49 upon his sons and their descendants were earth based. Reuben was said to be as unruly as a flood, Judah was like a young lion, Zebulon was to become the harbour for sea travellers, Issachar was like a donkey which carries heavy loads and enjoys it, Dan was like a snake, Naphat~~a~~l was like a dove which is set free, and Benjamin was like a wolf in conquering his enemies. The rest of the sons of Jacob received their appropriate blessings relating to their life style on earth and that determined their relationship with the Earth Community. The voice of the earth is clearly heard in these blessings for each one of the sons of Jacob. The Israelites' relationship with the land was not all that different from the way the Canaanites related to their gods of fertility. The difference that comes out in the text is the promise of that particular land.

The voice of the Canaanite land and its inhabitants was silenced and oppressed by the occupation of Israel, especial on their return from Egypt. They had multiplied and their wars to occupy the Promised Land were fierce. We shall explore how the Earth Community and humanity existed side by side in oppression of one by the other in Wisdom literature.

4.3.9. The book of Exodus and Ecology.

The book of Exodus is viewed as more of a liberation book, but we shall select some passages which relate to ecological concerns, especially basing on Solomon Victus's work in his book, '*Eco-Theology and the Scriptures*' of 2014'. The book of Exodus is indeed one in which we see God using creatures to heal other creatures, and he uses nature, as Victus asserts, "...for his liberative purposes" (Victus 2014:56).

The most interesting portion is Ex 7:14-11:13 where the ten plagues involving creatures are used to liberate God's people from the authority of Pharaoh: "Water turned into blood, increase of frogs, increase of mosquitoes, increase of flies, death of cattle, pestilence on humans, rain of hail stones, locusts, darkness, and death of the firstborns." (Victus 2014: 56). Victus is very right to point out that humans were the cause of what seemed to be a reaction from God. Today powerful multinational companies such as those in the mining sector pollute water by their various chemical

effluents and indeed mosquitoes increase in numbers due to poor drainage systems, especially in developing countries like Zambia.

It is indeed interesting to read the passage from an eco-justice perspective. But one fact is that in the story, God caused the scenario in response to human heart hardness, but today in various communities humans are causing the scenario of sickness and death due to self-centredness in the name of development. In Ex 15:22-25 we see God using a creature to heal another creature; a branch of some tree is used to make the bitter water of *Mara* suitable for drinking. God is able to bring any situation under control, and the non-human part of creation is no exception.

4.3.10. The book of Leviticus.

The book of Leviticus mainly consists of instructions for Priests, sacrifice and worship. Along with the Priestly and worship instructions goes prohibition against over consumption by way of fasting. Leviticus 11 brings out more limits in this regard. Solomon Victus cites the case of law in India when he says, “unstrained food processing trade has already witnessed the depletion of sea resources” (Victus 2014:59). He records that the Indian government imposes a fish ban during the first three months of the breeding season. Meanwhile the Zambian government declares the ban each year from 1st December to first week of March in the following year to allow breeding for fish stocks.

Chapter 19 prohibits cross-breeding of any kind of creature, including plants. Victus says, “The ethics of biotechnology, cloning, mixed crops, textiles of different types, are very much needed to be discussed here” (Victus 2014:60). Genetically engineered products mainly from developed countries have serious effects on the environment and local breeds. Unfortunately the underlying effects are never disclosed by proponents of such products. The Zambian government once rejected the importation of genetically modified crops such as maize, but various types have found their way into the country through commercial farmers and multinational agencies due to lack of capacity by controlling authorities.

Leviticus 25 brings out a link, as asserted by Victus, of the seventh day Sabbath with “...the sabbatical year and the Jubilee with liberation and ecological questions. Land is not a saleable commodity, but it belongs to God since humans are strangers in his land” (Victus 2014:60). Leviticus 25:23 states: “the land must not be sold on a permanent basis, for the land belongs to me. You are only foreigners and tenant farmers working for me” (New Living Translation). The perpetual succession of land ownership in most British Commonwealth countries including Zambia is limited to 99 years, after which a family has to renew their title to land (the Lands Act No.29 of 1995).

Salai Hla Aung contends that “...the Sabbath in its three Biblical forms – Sabbath day, Sabbath year and Jubilee—is a significant theological formulation of a conservation ethic...but the problem with the Old Testament Sabbath is its one-sided emphasis on religious observance...it overlooks and forgets the conservation commitment”(Aung 2011:125). We however dispute that the Leviticus community was not exposed to the kind of ecological concerns such as we are faced with today. Moreover, the religious instructions carried with them ethical conduct of humans in public life. There was no distinction between religious life and public life for the people of God to whom the Sabbath law was given. Ethical conduct in religious life of the people always meant well for the land. Demand for agricultural productivity due to the needs of the communities for food is an economic factor that cannot allow land to have a Sabbath.

4.3.11. Ecological concerns in the books of Numbers and Deuteronomy.

The book of Numbers as implied by its name begins with the registration of the troops of Israel according to their tribes. But what come out clearly in the rest of the book are religious rituals, sacrifices and the livelihood of the Levites. Chapter 13 however has a direct reference to land and its use when spies are sent; a member from each ancestor is included in the group. Most of the Exodus incidents and Leviticus accounts are repeated and detailed.

Deuteronomy 11:21 associates living on the land to a direct blessing; a landless person misses the base for blessings. There is an aspect of perpetual succession

when it reads: "...as long as the sky remains above the earth, you and your children may flourish in the land the Lord swore to give your ancestors"(New Living Translation). This is the land flowing with milk and honey. The indiscriminate felling of trees is discouraged according to Dt 20:19-20 (Victus 2014:63). The same passage "... forbids a 'Scorched earth' policy of warfare..." (Victus 2014:63).The book further prescribes how human waste should be disposed of, not only as a religious obligation, but also as a way of avoiding environmental pollution(Dt 23:12-14). Various ethical instructions are spelt out to be applied even by 21st century generations, if we are to avert ecological disasters.

4.4. Ecology in the Prophets.

It should be stated from the onset that the Prophets of the eighth to sixth century BCE would not concern themselves so much with environmental degradation. The ecological crisis was so distant from them that it would not occupy much of their prophecy or take much of their time to warn communities about it. John Barton in Horrell (2010) rightly argues that "they concerned themselves much more, obviously with interpersonal ethics than with environmental ethics, and this is certainly how they have mainly been received, both in Judaism and in Christianity" (Horrell 2010:47).Most of the Prophets whose books bear their names prophesied between eighth and fifth centuries BCE. The ecological crisis was not yet in sight, and mostly their messages were concerned with social justice, kingdom's relations with God and individual's conduct in the light of God's righteousness. "They did not think about sustainability or pollution of course, but mainly about the justice or injustice for human beings of system of land distribution" (Horrel 2010:47). Nevertheless we shall explore some passages from several prophetic literatures in order to assess the eco-justice principles of intrinsic worth, interconnectedness, voice of earth, purpose of each component in creation, mutual custodianship and resistance of earth and the Earth Community.

4.4.1. God's glory on Earth (Isaiah 6:3).

The portion in the prophet's account of his vision while in the Temple stands as a witness to sacredness of creation. Isaiah heard the seraphim calling in response to

each other saying: "...Holy, holy, holy...The whole earth is filled with his glory!" (New Living Translation) He might have not seen the glory on earth, but the testimony of the heavenly host to the fact that the earth is sacred cannot be overemphasised. The human pollution of creation tends to make earth seem as though it is not sacred.

4.4.2. Earth is cursed because of human sin. (Isaiah 24:4-6).

The passage in Isaiah as indicated above is striking in the way earth suffers due to sinful living of one species of its inhabitants, humans; earth mourns and dries up, crops waste away and wither. Even the greatest people on earth wear away. The earth suffers for the sins of its people, for they have twisted God's instructions, violated his laws, and broken his everlasting covenant. Therefore, a curse consumes the earth. Its people must pay the price for their sin. They are destroyed by fire, and only a few are left alive (Isaiah 24:4-6, NLT). Hilary Marlow says "...the description of the land or earth 'mourning' echoes similar vocabulary in Hosea 4:3 and Amos 1:2." (Marlow 2009:201).

The first question which comes to the mind of a reader of the passage in Isaiah is, why should earth suffer for the sins of human beings? Second, is there no other way by which God could have dealt with sinful humans themselves and leave out innocent earth? Third how involved was earth in the sin of its inhabitants for it to suffer the consequences? Many more questions could be raised in view of what modern law would term as natural justice. In answering anyone of the questions we have raised above, eco-justice principles come into play: humans can only have a meaningful life and flourish for as long as the earth gives them shelter, food, clothing, water, air and all they need to survive. The intrinsic worth of earth is acknowledged because without earth, humans would not exist in the abstract as it were. Humans are interconnected to all other members of the Earth Community, and so to punish them means to disturb their means of livelihood.

Norman J. Charles (2001) associates the curse upon earth to the present context when he argues that "air, Water and noise pollution, acid rain, deforestation, clear-cutting, the greenhouse effect, and nuclear waste, toxins in the soil, air and water,

lead poisoning, mercury-laden fish, holes in the ozone layers..." (Charles 2001:123) are as a result of human activity. He further alleges that there are no longer forests, clear water in rivers and lakes, species of birds, beasts, fish and other species of the Earth Community. The earth cannot any longer provide natural remedies once relied upon by traditional indigenous healers and their communities. What humans have done to earth has resulted in its curse, to suffer together with the perpetrators of atrocities to creation.

The aspect of resistance by earth is realised when it cannot any longer produce for the needs of humans. It is the entire cosmos which is at pain due to humanity's dealings on earth. How does mitigation for humanity's cause of misery come to earth? This is a question we shall address in the framework and praxis for eco-justice.

4.4.3. Renewal of the cosmos (Isaiah 65:17).

The verse stands out in contrast with Isaiah 24:4-6 where the earth and its inhabitants are cursed to extinction or misery. We hear of a new earth and a new heaven when he says... "Look! I am creating new heavens and a new earth, and no one will even think about the old ones anymore" (Isaiah 65:17) (NLT). It is argued however as to what "creating a new heaven and earth" implies in view of what is already created. Even if, as some scholars maintain, new does not mean destruction and, re-creation; but merely a renewal of what had existed previously, it must be asked why renewal is necessary (Gardner 2001: 204).

The material by which a new creation is made of may not be an issue in this case, but the scenario and character of what is new has more bearing on creation. According to Isaiah 24, the principles of intrinsic value, the purpose and the interconnectedness of the Earth Community are violated by humans, and the scenario is such that earth suffers a curse. The return to a new heaven and new earth is correctional, where all the eco-justice principles would be upheld. It is the restoration of earth's dignity and realisation of its sacredness.

In connection with the renewal in Isaiah 65, Boff argues that "...that is why we speak of the need for a true retrieval of the sacred." (Boff 1997:115) According to Isaiah, God will bring about the new creation and sanity will prevail for God's obedient people, while the disobedient like those cited in Isaiah 65:1-7, 13-16 is the scenario in the renewed creation thus "... my servants will eat, but they will starve. My servants will drink, but you will be thirsty. My servants will rejoice, but you will be sad and ashamed..." (Isaiah 65:13-16)

The rejoicing and enjoyment that goes with life in the new creation is as a result of intrinsic value of the earth and all its components. The principle of interconnectedness of members of the Earth Community would be at work at its best in the renewed creation. It is a fact that renewal will take place by using what is already present because in verse 8 – 10, God said "But I will not destroy them all says the Lord, for just as good grapes are sound among a cluster of bad ones (and someone will say, don't throw them all away – some of those grapes are good), so I will not destroy all Israel, for I still have true servants there. I will preserve a remnant of the people of Israel and of Judah to possess my land"(Isaiah 65:8–9(NLT)).

It follows that the preserved would multiply and continue to live in a new created heaven and earth. The re-creation of earth and heaven is also eschatological from a global ecological point of view. Moltmann argues that "the natural cosmos, which man sees through and dominates more and more is being replaced by a new cosmos of his own objectifications and this cosmos is increasingly hard to see through, and harder still to dominate and control" (Moltmann 2007:5). At most, eco-justice principles of resistance and voice of the earth are heard and appreciated in the act of renewal.

4.4.4. Perpetual succession and land in Jeremiah 32

The context of the story of Jeremiah's purchase of land from a relative named Hanamel was strange in that the message concerning the purchase came to Jeremiah while he was in prison within Jerusalem. The city itself was under siege from the Babylonians. Jeremiah was put in prison for prophesying against King Zedekiah of Judah. While in prison, Jeremiah received a message from God as

follows: “your cousin Hanamel son of Shallum will come and say to you, buy my field at Anathoth. By law you have the right to buy it before it is offered to anyone else” (Jeremiah 32:7) (NLT). It is clear that the original owner of the land, Hanamel had some financial problem, although it is not disclosed in the text. Hanamel had to sell his land to a relative to keep it within the family circle, and that was according to the law of property redemption in the book of Leviticus 25:23-34. Land in Judah and Israel, according to the passage in Leviticus belonged to God; “The land must never be sold on a permanent basis, for the land belongs to me. You are only foreigners and tenant farmers working for me” (Leviticus 25:23) (NLT).

The law of redemption therefore served to retain the land for the owner or within the family because it was their promised inheritance dating back to the time of Abraham, Isaac and Jacob. Family land also served as a burial place for the family, a practice which kept the bond between the ancestors, the present generation and those yet to be born. The law of perpetual succession of land by families protected the poor from victimisation and extreme poverty at the hands of the rich. Isaiah 5:8 alludes to the fact that the rich would grab all land and property through exploitation. Habel emphasises that due to socio-economic developments during the monarchy, more and more of the Israelite farming community lost their land. The great eighth century Prophets Amos, Micah and Isaiah highlighted the mechanisms of oppression and exploitation which led to the accumulation of land in the hands of a few land owners, rich grain-merchants and money lenders residing in the cities (Habel 2001:133-134). By perpetual succession of land, the intrinsic value, mutual custodianship of land, and interdependence of earth and humans are central. According to Jeremiah, land is not to be treated as commodity for sale, but it is the nurturing and life giving ground of all new life for the community in future (Wittenberg 2001:137). Jeremiah bought and sealed the deeds of ownership in order to preserve land for future generations of his kindred. Jeremiah’s act of purchasing land was a prophecy for restoration and renewal of the people of Judah and Israel. Their hope rested on land and without land no community or family can survive.

The perpetual succession of land is both redemptive and eschatological in nature. It serves both the present and future generations. The purpose and mutual custodianship of land is explored further in the light of the Zambian Land Act in the

light of the proposed land management policy in chapter five. The right to land is assessed against the practices of the investors, particularly those in the mining industry.

The rest of Jeremiah's prophecy in chapter 32 consists of his prayer about the fall of Jerusalem. The passage ends with a promise of restoration by God's statement that, "...I will certainly bring my people back again from all the countries where I will scatter them in my fury" (Jeremiah 32:37) (NLT). The purchase of a relative's land by Jeremiah was therefore a metaphor for the perpetual succession of God's promise of land to the people of Israel and Judah, which land they would not permanently sell because it belongs to God himself. (Compare with Lv 25:23).

4.4.5. The Earth and God's justice in Ezekiel

A number of passages which are cited from the book of Ezekiel portray quite a difficult theological understanding in as far as God's justice towards earth is concerned. Wittenberg in his work with the Earth Bible Team warns that any reader of his work on the following passages should not take it as example of how earth should be treated on account of human misdeeds (Wittenberg 2001:142). The warning from Wittenberg comes due to the fact that earth suffers quietly from God's wrath due to human sin against God. God's wrath is directed at earth to desolate and devastate in order to punish humans who inhabited it. Almost in all the circumstances that are cited here below, God wants to show that he is the Lord by making land and cities desolate. Ezekiel 6:14 says "I will crush them and make their cities desolate from the wilderness in the south to *Riblah* in the North. Then they will know that I am the Lord" (NLT). The reasons for crushing the people and their cities are given in the preceding verses which include idol worship by Israel and many detestable sins. In chapter 6.1-2, Ezekiel is told to turn and face the mountains in Israel to prophesy against them. Of course most shrines were situated on hills and mountains as higher grounds. The mention of the wilderness (desert) and *Riblah* shows that the two countries were to be made desolate or to be left without inhabitants and inhabitable.

The prophet in Ezekiel 12:17 – 20 says, “The message came to me from the Lord, son of man, tremble as you eat your food. Shake with fear as you drink your water. Tell the people, this is what the sovereign Lord says concerning those living in Israel and Jerusalem: they will eat their food with trembling and sip their water in despair for their land will be stripped bare because of their violence. The cities will be destroyed and the farmland made desolate. Then you will know that I am the Lord” (NLT).

Again we see another terrible sin by Israel mentioned in this passage for which cities must be destroyed; it is the sin of violence. Devastating punishment was promised and the prophet had to demonstrate first how fear would grip people. God still wanted to prove that he is the Lord by making land, cities and the whole countryside waste. The punishment is not only meted out on humans, but even on land, the environment and that even the righteous few would be affected for people to know that he is the Lord. The question of justice, even from an ecological point of view is raised. Ezekiel 21:3 testifies to the fact that even the righteous among the people would be affected. Ezekiel further prophesied by saying, “Tell her this is what the Lord says: ‘I am your enemy, O Israel, and I am about to unsheathe my sword to destroy your people – the righteous and the wicked alike... everyone in the world will know that I am the Lord’” (Ezekiel 21:3 - 5) (NLT). Carley says it is not only the idolatrous and the violent individuals who commit abomination who will suffer when God exerts recompense, but also those who have maintained righteous behaviour (Carley 2001:147). But why should God prove his Lordship and power over creation in this manner? The preservation of a remnant like in Ezekiel 9 does not seem to be considered in chapter 21.

Ezekiel 33:32-39 is yet another passage expressing God’s fury to destroy and make desolate the mountains of Israel. The mountains were not able to respond to God’s accusations in the prophet’s proclamations against them. The rest of the land does not seem to say anything in response. Earth’s voice is suppressed. Although land might also refer to countries as the case is in Ezekiel 29-32 and Ezekiel 35-36, for the countries of Ammon, Moab, Edom, Philistia and Egypt. The mention of mountains and desert implies that all land features were to suffer from God’s punishment for the sins of its inhabitants. The aspect of interconnectedness and

intrinsic value of earth and its components were the reasons for God's fury to make land desolate. The sins were committed on the land and mountains which are mentioned in the passages because they hosted shrines for idol worship. To destroy the idols and their shrines involved destroying the places where they were situated.

Carley's assertion that from the point of view of earth, the example of justified retribution in Ezekiel is not helpful to the cause of ecological responsibility, let alone of peace for individuals or nations (Carley 2001:157) is worth taking note of. This is parallel with modern experiences of wars when bombs are dropped on land and nuclear bombs are tested on land and sea just to satisfy the technological mastery of humans. As opposed to anthropocentric passage in Genesis 1:26-28, the passages cited in Ezekiel are centred on God's desire to satisfy his fury. The fury of God is extended to neighbouring countries of Ammon, Moab, Philistia, Tyre and Edom because some of them cheered and laughed at Israel when it became desolate. Even the action to avenge Israel by God was to prove that he is the Lord. Further the case of punishing Israel's neighbours for avenging themselves with Israel in their attitude when the land was made desolate by God's fury was proof that he is the Lord, and we would say that God is central in his creation, but earth and its inhabitants are on the receiving end.

Ezekiel 36-38 portrays a situation of hope for restoration of both communities and the land. In Ezekiel 36:25, 32 we hear God saying: "then I will sprinkle clean water on you, and you will be clean. Your filth will be washed away, and you will no longer worship idols. And I will put a new spirit in you. I will take out your stony, stubborn heart and give you a tender, responsive heart... but remember says the sovereign Lord, I am not doing this because you deserve it. O my people Israel, you should be utterly ashamed of all you have done!" (NLT)

The chapter begins with a prophecy to Israel's mountains, hills, valleys and ravines that they would produce heavy crops of fruit for God's people. We therefore contend that in all that God did to his people, he did it collectively for his creation, either to punish or to restore, for God in Ezekiel had a concern for the earth and the Earth Community. The suffering of both people and their land at the hands of God's fury surely portrays the interconnectedness, mutual custodianship; purpose of earth

components and of course their intrinsic value, although these principles can only be seen from the spectrum of selection, promise, punishment and restoration of Israel / Judah and their land.

The justification of interdependence of human and non-human communities in and around copper mining towns in Zambia is yet to be proved in relation to the utilitarian tendencies of the industry and its investors. Ezekiel prophesied restoration of both human communities and the non-human, although that was in view of the restoration of Israel; and we wish to assess promises if any, by mining companies to restore displaced communities and the land where nothing grows due to pollution and the acidity of the soil. The next chapter addresses most of what is expected in the call for the earth's voice to be heard and ways to mitigate the effects of an ecological crisis due to human activity and other factors. It therefore follows that there is hope for the Earth Community, according to Ezekiel, for renewal when God is involved. Although Ezekiel's context of his writing has no eschatological bearing, the prophecy is a reminder of such hope for renewal.

4.4.6. The Earth in Hosea.

The understanding of land in relationship with God in Hosea is symbolised by the prophet's marriage to a woman of whoredom. The children of whoredom and the woman, who represents land, were the people of Israel. Braaten's assertion that "in Hosea, land is not just real estate where the drama of salvation is played out or where Israel receives agricultural blessings – she is a major participant in the story..." (Braaten 2001:188) is expressed in the very beginning of the book. When the Lord first began speaking to Israel through Hosea, he said to him, go and marry a prostitute, so that some of her children will be conceived in prostitution. This would illustrate how Israel had acted like a prostitute by turning against the Lord and worshipping other gods Hosea 1:2.

Chapter 2 begins with an address to the land of Israel for having committed prostitution and the children are the people of Israel. Again like in Ezekiel, the land or earth has no say over the sins and results thereof, which were committed by the people. However, earth is rebuked and charged. "but now bring charges against

Israel – your mother – for she is no longer my wife, and I am no longer her husband... otherwise, I will strip her as naked as she was on the day she was born. I will leave her to die of thirst, as in a dry and barren wilderness" Hosea 2:2-3 (NLT). Land was to suffer the consequences of the sinfulness of the people. Hosea's message or prophecy portrays a relationship between God land/earth and the people of Israel in which relationship land/earth is a wife to God, while the people of Israel are the children, whose mother in the case of the prophecy, was a prostitute. This reminds us of God's claim of land as his own, and the people as mere tenants in Leviticus 25:23, echoed by Jeremiah's portrait of perpetual succession of land by families on behalf of God. We assert that the punishment which was leashed on both the people and the land in Ezekiel is justified by the fact that both land and people belong to God, and land was made unclean (ceremonially) by the misdeeds of the people.

When God in Hosea redeems the earth/land as illustrated by Hosea's marriage, the people who were the children from prostitution were also brought back for reconciliation. The rest of Hosea constitutes messages directed to the people, their Priests and leaders; and not to the land. The closing verses of Hosea 2 carries with them promises to restore peace between God, the people of Israel and the land. The Earth Community is re-created in Hosea 2.18-23 when God himself, heaven, earth, the wild animals, birds of the air, creeping things, the grain, wine and oil and the people are all reconciled. (Braaten 2001:195-202) It is like the peace among the Earth Community which was prophesied in Isaiah 65, where wild beasts would be at peace with domesticated ones. Isaiah 11.6-9 carries the same message of peaceful living between wild animals, humans and domestic livestock.

4.5. Ecology in the Wisdom Tradition.

The Wisdom literature of the Old Testament is part of the Hebrew scriptures and they consist of Job, Proverbs, Ecclesiastes, Songs of Songs, Lamentations, Psalms and the book of Wisdom from the apocryphal. Mostly, the Wisdom literature constitutes a celebration of life, praise of the creator by the created, but scarcely reflects the relationship of humans with other members of the Earth Community. Nevertheless, the intrinsic value of earth is visible in the Wisdom literature portions

which are cited in this study. Habel and the Earth Bible Team begin the volume on the earth story in Wisdom literature by raising a question as to “where is the voice of earth in Wisdom literature?” (Habel 2001:23). The question was raised as a result of the missing voice, in most cases from the earlier two volumes in which they had explored some portions of scripture. Two similar questions the Earth Bible Team has raised in their third volume are: “Is the voice of earth silenced, suppressed and ultimately dominated by the wise” (Humans). “And if the voice of earth does surface, does it have a distinctive character or function?” (Habel 2001:23)

While Wisdom literature is viewed by many, including scholars, such as Zimmerli who claims that, “wisdom thinks resolutely within the framework of a theology of creation”, (Habel 2001:24) it takes ones effort to identify scripture portions where the voice and value of the Earth and Earth Community appears in Wisdom literature.

4.5.1. Eco-justice in the Psalms.

We shall explore a number of passages from the book of Psalms to assess the visibility and audibility of the six co-justice principles. These are intrinsic value, interconnectedness, voice, purpose, mutual custodianship and the resistance of earth. On one hand the book of Psalms displays a spectacular relationship between God and creation; on the other it does so between humanity and creation. Prominent in the Psalms are praises of the earth and the Earth Community to God the creator. Example can be seen in Ps 65:8,12,13 where the Earth Community rejoice; in Ps 96:11, 97:1 the earth rejoices; in Ps 96:11 the skies are glad and seas roar in praise; in Ps 96:12 trees sing and the works of creation give thanks; in Ps 145:10 and in Ps:148 everything from sun, moon to sea monsters and snow are called on to praise God (Habel 2001:27).The earth and its community are viewed as subjects who have a voice with which to express their existence and value. The term voice was used previously though anthropocentric as it is shall continue to be used as a metaphor for the responses and expressions of the earth and the Earth Community.

The book is dominated by poetry and songs which existed in near Eastern traditional and worship life. Although the original sources of most Psalms may not be traced, most of them are headed by names of people who are assumed as authors.

David's name appears at the beginning of seventy-three of the Psalms. They include Psalms 3, 4 and 5; while Psalms 44 to 49 are attributed to the sons of *Korah*, and Psalms 73 to 83 to Asaph. We cannot be specific with the date of authorship because the process of developing the present arrangement took stages over a period of time. An example of such stages is cited by Guthrie in the use of Yahweh as name for God in Ps 3 to 41; and Elohim in Ps 42 to 83 (Guthrie (ed) 1970:447). The psalter has continued to be useful both in the Catholic traditions as well as in the Protestant and charismatic worship services.

4.5.2 Psalm 8

This Psalm is attributed to David, who is viewed to praise God when he says "your majestic name fills the earth." (Ps 8:1). In this case the earth, although it is not the subject, carries or reveals, by identifying with the name of God, how majestic he is. All the cosmos is below God's name. The wonder at God's creation makes the Psalmist to question why he (God) considers humans to be important and place them in charge of everything God created. At least the passages (Ps 8:1, 3-8) do not carry such anthropocentricity, although the assertion of Genesis 1:28 still resurfaces. The subject is God himself, but in a manner of exhortation, praise and great honour. We still strongly suspect that the indication of humanity's rule over earth is enough evidence to devalue the Earth Community and look down upon earth and its inhabitants as objects for domination. The Psalmist simply stands in awe and surprise at the immense creation of heavenly firmament; the sky, stars, moon: "when I look at the night sky and see the work of your fingers – the moon and the stars you set in place..." (Ps 8:3) (NLT).

Eventually man (humanity) claims that they are in control of all that God has created; the usual anthropocentrism of Genesis 1:28 resurfaces in Ps 8:6-8. The voice of earth and the created beings on earth does not seem to be heard, but the Psalmist stands on earth as he wonders at the sky, moon and stars without acknowledging the value of where he stands and observes God's majesty.

The position of man is totally relativised in this Psalm. It has two quatrains stating on the one hand the humbleness of man and on the other hand the heavenly descent of

man, but it is composed within an inclusion: the greatness of the Lord. Man receives his value in the creation by God.

4.5.3 Psalms 24; 74; 93

These portions of the book of Psalms carry with them the assertion that chaos was resolved through a battle between a god and a hostile water-being, with the victory of the god resulting in the creation of an ordered cosmos from the corpse of the vanquished enemy and the assumption of absolute rule by the god (Habel 2001:29). This is derived from the creation myth entitled *enuma elish* from the ancient Near East.

The mythic assertion of a dead earth which was a result of the battle, alluded to in Ps.24 makes the earth an object for oppression, with its surrounding waters which are part of the earth. The Psalmist's indication that the Lord, "laid the earth's foundation on the seas and built it on the ocean depths" (Ps 24:2) (NLT) implies that God imposed his rule on the seas to build earth. Was the sea inhabitant(s), according to Psalm 74 the enemy who was defeated in the battle, and whose corpse was used to make the earth and skies according to the *enuma elish* myth?

The creation story, especially from the Priestly source in Genesis 1 carries with it the elements of chaos which was ordered into the cosmos we know today. Ps 74 brings in the ordering of day and night, summer – winter; but does not assert to the use of water beings for creating the world, as Habel (2001:29) also confirms; which is the case in the myth of *enuma elish*. Ps 74:13-17 is preceded by a call for vengeance on those who destroyed the Temple of the Lord, as though they were led by the sea monsters whose heads were smashed by God. Again the myth of the ancient Near East shows up its characteristic of the creation story. The silent voice of earth is heard in the mention of summer and winter (Ps 74:17). The weather reminds the Psalmist of God's orderly creation, but it comes out of humanity's complaint and appeal to be saved.

Ps 93:3-5 is a repeat of a threat by use of metaphoric language of fierce floods, waves, raging seas and the tempest against which the Lord's majesty is no match. The sea is still the area of conflict or battle as it were in Ps 24 and 74. We identify earth as silent in this conflict, although part of its body, the seas or water bodies are objects in the purported conflict.

Psalms 90, 91, 92 which are attributed to Moses who lived long before David and Solomon in the land of Canaan stands out at the beginning of book four of the Psalms (90-106). While Ps 90 begins with praises to an acknowledgement of God's might and power; there is an expression of interconnectedness of the Earth Community. The return to earth or dust according to Genesis 3:19, and Job 1:21, is repeated in Ps. 90:3, which is a typical expression of the interrelationship between humanity and earth. There is an appeal for protection throughout the above mentioned Psalms (90-92), and an assurance is the response in effect of the confidence in God's protection.

Reading this portion of the Psalms from the perspective of earth should allow us to apply the principles of interconnectedness, voice and resistance whereby earth, humans and God should be central in interpretation. The earth and all its inhabitants, according Urbrock (2001), "are time bound in their flourishing and perishing... a reading attentive to the principles of voice and resistance allows us to hear Psalms 90-92 as a magnificent earth song. In this song earth joyfully celebrates its divine birth and calling, laments over its suffering at the hands of God and humanity, cries out for justice and renewal, and expresses confident hope for its future deliverance and restoration" (Urbrock 2001:67).

The principle of interconnectedness, voice and resistance are realised when we read the above stated Psalms from earth's perspective, when God is brought into the perspective, then the assertion by Sallie McFague (1993) and Boff (1994) that "the universe itself is the very body of God and ultimate unity of the universe is itself a life" (Boff 1994:244) becomes a fact for creation in relation to the creator. The earth addresses God on behalf of all the creatures by acknowledging the sole and place it occupies in the whole realm of life. This is done in a song in Ps 90:1–2.

“Lord through all the generations you have been our home! Before the mountains were born, before you gave birth to the earth and the world, from beginning to end, you are God” (NLT). In this address, the earth talks about God’s creative activity, when mountains and the rest of creation were put up by God. Earth attributes eternity to God by expressing the fact that God has been there from time immemorial, before anything on earth was created, even before earth itself. This is a clear voice by earth whose habitant for numerous species of animals, birds, insects and many none living members of the Earth Community are being cleared at an alarming rate by one dominant spice, humanity. In stanza 3-6, earth points to a fact of life for the dominant creature, humans, that their life span is such a brief stay on earth. “You turn people back to dust, saying ‘return to dust you mortals,’ for you a thousand years are as a passing day, as brief as a few night hours, you sweep people away like dreams that disappear, they are like grass that springs up in the morning. In the morning it blooms and flourishes, but by evening it is dry and withered” (Ps 90:3-6) (NLT).

Is the earth reminding humans that they should be careful with what they do to creation because, after all, they are not permanently created? Ps 90:7-12 is an acknowledgement by humans that indeed their life span is short; and that the human life span goes by with pain and turmoil. There is also in the Psalm a prayer for wisdom for those who take refuge in God. “Teach us to number our days so that we may grow in wisdom.” (Ps 90.12). The final part of Psalm 90 represents the voice of earth who now “speaks again for itself and all its inhabitants, human and non-human, all of whom are God’s servants in one way or another. Earth prays that divine loving kindness (*chesed*) and favour (*no’am*) will bring about a renewed future for all these servants.” (Urbrock 2001:73). The eco-justice principle of interconnectedness of the Earth Community is vividly appreciated and appealed for. The rest of the portion of/or section (Ps 90-92) in the earth song is an attribution to God’s protection and majesty and an appeal for renewal – in the Earth Community. Assurance of protection is given, for as long as earth and its inhabitants remain in the shelter or refuge of God. Ps 92, which is the last portion of the earth’s song brings out a surprising assertion by earth that it has witnessed the down fall of God’s enemies. Earth in this Psalm voices out those who are God’s enemies also viewed as its enemies (Ps 92:9) and (Ps 92:11). This is echoed by Ps 92.8 and Ps 92.10 in which

earth says “Just as God is exalted on high, earth is ever renewed and exalted by God like a wild Ox” (Urbrock 2001: 80).

Does earth bless those who care for her in this last portion of the earth song called a Sabbath song? Of course there is mention of the wicked, possibly to be those who do not care about earth and God’s life statutes. This is what Habel and the Earth Bible Team refer to as resistance and resilience of the earth (Habel 2001:7). Earth has to be respected according to the conclusion of the song in Psalm 92:8-11. The mention of flourishing palms and cedar of Lebanon reminds humans of the importance of trees such as those for shelter, fruit and flowers. We would assert with the Psalmist that humanity has to restore where depletion has taken its toll, and protect where destruction of forests has not yet affected the species.

4.5.4 God in Earth – Psalm 104:1-9, 32

The opening verse of the Psalm is striking in that the voice of earth if interpreted from an earth perspective is clearly heard, thus “Let all that I am praise the Lord.” (Ps 104:1) this one stanza of the Psalm expresses a point that earth and the entire Earth Community embodies God in them. We assert that God’s presence in nature is acknowledged by the earth. C.S Lewis (1958) is quoted by Arthur Walker-Jones when he says, “To say that God created nature, while it brings God and nature into relation, also separates them. What makes and what is made must be two, not one. Thus the doctrine of creation in one sense empties nature of divinity” (Walker-Jones 2001:87). Therefore when the voice of earth is heard to appeal to all that is in it to praise the Lord, we deduce the presence of God in Earth. This is also expressed in the traditional religions in many parts of indigenous communities such as in the Fijian culture where land (*vanua*) embodies the gods and ancestors (Habel 2001). The dependence of people’s lives on land implies that “first, God in Earth and as earth; second, earth as alive, interconnected, interdependent and intrinsically valuable, and third, earth as able to raise its voice in celebration of life and resistance to exploitation” (Habel 2001:87).

The above cited assertion is recognised in the earth reading of the entire Psalm 104; though in parts. Although Ps 104:1-5; resembles the Canaanite thundering god, here

thunder is taken to be the voice of God and flame fire as servants of God. Other parts of the Psalm depict earth as alive and celebrant thereby confirming the mutual custodianship and intrinsic worth principles of earth. The singing of the birds in trees and the production of food, oil and wine for humans, and the rejoicing of the Earth Community confirm the above mentioned principles, including that of voice.

4.5.5 The Book of Proverbs.

The book of Proverbs is generally known as the Proverbs of Solomon the son of David. Several portions of the book contain a different genre. Most of what is believed to be Solomon's wisdom is contained in Proverbs 10:1-22; 16; 25-29 (Guthrie 1970:548). These are sayings according to scholarly findings which are common in Near East wisdom, therefore some of them originated with other ancient traditions much earlier than Solomon's Kingship. Other portions of the book of Proverbs are categorised as those composed by the wise and Hezekiah's men. The wise men were found in every nation, and they associated with the royal dynasty in each case. Guthrie gives examples of Egypt in Gn 41:8, and Edom in Obadiah 8 (Guthrie 1970:548).

Chapters 25-29 are believed to be a collection by Hezekiah's men from Solomon's wisdom sayings. Chapter 30:1 mentions "Agur the son of Jakeh of Massa" (Guthrie 1970:549). Massa was an Arab tribe from Abraham through Ishmael. Chapter 31:1-9 is yet another portion identified with King Lumuel, and his mother is recorded as the source. The portion is still associated with Massa. The date of the written text of Proverbs is generally agreed to be about 180 BCE; although it was compiled over a period of time. In form and content the book of Proverbs is carefully compiled according to an internationally accepted literary form; it is in poetic form.

An example of Proverbs 10-21 relates to God three times and mostly associating him to social justice and not to creation. The following passage illustrates what has been mentioned above: "Those who oppress the poor insult the maker, those who are kind to the needy honour him" (Proverbs 14:21). The mention of domesticated animals in other passages of the Wisdom literature is on the basis of how humans value them, usually without showing an intrinsic value of all creation. Most of the sayings in Proverbs 10-21 are anthropocentric. They speak about how one prospers in life and

society, and how to relate with fellow humans, one such proverb says: “To get wisdom is to love one; to understand is to prosper” (Proverbs 19:8).

In answer to the question as to whether the voice of the earth is silenced, suppressed and dominated, we see in Proverbs how nature gives wisdom lessons to humans who seem to be the centre of creation, as portrayed by Proverbs. Proverbs 6:6-9 is another example of how humans are the centre of the discourse in which the ant is considered to be wiser than a lazy human person. Lynn White says “ ...nature was conceived primarily as a symbolic system through which God speaks to men: the ant is a sermon to sluggards...” (White 1996:190)

The intrinsic value of the Earth Community and its interconnectedness is not brought out as the case may be expected. Both Proverbs 6:6-9, and 30:24-28 only provide for a wise person to learn from other creatures such as ants, locusts, badgers and lizards. It is only by drawing lessons from the animal kingdom that we see that the voice of the Earth Community is heard, at least by and among those who value creation and the creator, who is also called the wise.

The first chapters of Proverbs (1-9) are instructions to live happily, long in health and in prosperity from a woman who claims to have witnessed creation time. She is personalities as “wisdom” claiming to have been a witness when the cosmos was created. Perhaps in this witnessing fact, we can hear the voice of earth and the Earth Community. The notion that the woman called wisdom was presented at creation of the universe is portrayed in Proverbs 8:31, and according to Wurst in Habel, 2001 “woman wisdom... and co-creator of Earth and Earth Community, is the voice of earth and the wider Earth Community for human beings” (Habel 2001:29). The notion implies that the personality woman wisdom is actually the essence of the interconnectedness of earth and the Earth Community, in which humans are called to listen and learn from the web of the living and the non-living.

4.5.6 Ecclesiastes

This portion of the Wisdom literature upholds life to be better than death and that life is to be lived in full celebration because after all, it ends and becomes useless. Ecclesiastes 3:19-20 indicates that humans and animals have the same breath of life

and both are from dust and that they all return to dust when they die. Therefore the destiny of human life, according to Ecclesiastes is the chasing of wind.

The fact that humans and animals have so much in common in that they all eventually die does not give us a ground or basis for that interrelationship between humans and the rest of the Earth Community. We must however admit that for human life to be enjoyed according to Ecclesiastes, the earth must be sustainable and that consequences are grave if humans don't enjoy life on earth in a sustainable way.

4.5.7 Wisdom

The book of Wisdom which is attributed to Solomon brings out what Habel refers to as the voice of earth (Habel 2000a:5). Again we hear from this portion of Wisdom literature that wisdom fills the whole world (Wisdom 1:6), and that she emanates from the Glory of God (Wisdom 7:25). This portion of the Wisdom literature indeed testifies to have/had been part of the creative agenda, especially when Wisdom 10:4 is related to Genesis 1:1-7 in terms of the waters from which earth was rescued, as it were.

According to Habel, wisdom “teaches humans about the system of Earth and Earth Community in what today we term as botany, zoology, Pharmacology and astronomy” (Habel 2001:33). This he says in line with Wisdom 7:17-21, 9:9-11. Solomon declared that “for wisdom, the fashioner of all things taught me” (Wisdom 7:21).

The principles of intrinsic value/worth of earth, interconnectedness of the Earth Community, the voice of the earth, the purpose of each part of the Earth Community and indeed the mutual custodianship of such a community (earth) are all seen to be applicable in the book of Wisdom. However, the notion by Carole Fontaine who asserts that in the Song of Songs, earth becomes a metaphor for a loved one (Fontaine 2001:131) is indisputable, although King Solomon himself was a very romantic person in his social life. This is evidenced by what is recorded in 1Kings 11:1-3, that Solomon had 700 wives of royal birth and 300 concubines. The foregoing matches with the opening of the song “Kiss me and kiss me again for your

love is sweeter than wine.... no wonder all the young women love you! Take me with you, come, and let us run! The king has brought me into his bedroom." Song of Solomon 1:1-4. The rest of the song is a romantic conversation between a man and a woman, and no voice or any value of earth seems to be suppressed or indicated.

4.5.8 Job

Norman C. Habel is correct to assert that "there is no single cosmology in Job...for the cosmology of Job as a character in the plot emerges from his life experience, his suffering and his encounter with God" (Habel 2001:65). Before his suffering Job is depicted as a wealthy man, a successful pastoral agriculturist with seven sons and three daughters. He is depicted as a righteous man too, but soon he finds himself at the centre of contention between God and Satan. Going by the kind of agricultural practices of the ancient tribes, there is no doubt that Job and his family lived in a sustainable environment, in terms of land, water and other elements of the Earth Community. Job owned 7000 sheep, 3000 camels, 500 teams of oxen and 500 female donkeys and had employed many workers. He was indeed the richest man in the area (Job 1:3). Again like in the story of Abraham, it is the earth which is the basis of growth, multiplication and prosperity for humans. Like it is stated above, the cosmology of Job comes out of his experience of life. When calamity strikes Job realises that he is caught up in between three domains as Habel calls them. (Habel 2001) There is an area Job calls Sheol or underneath earth. In Job's experience as narrated in his story, there is also a place where the divine lives up above all physical life; and Job is in the middle; on earth. Out of so much pain Job cursed the day he was born (Job 3:3) and wished that he died at birth so that he could be buried like any other person. Job claimed that in Ssheol or tomb, there is neither rich nor poor. There is neither king/prince nor common person because they all attain the same status. (Job 3:17).

The statement that from earth he came, and to earth he would return confirms that actually Job regarded mother Earth's underneath domain as a womb. This is also confirmed in his expression that he came naked from his mother's womb and he shall return naked (Job 1:21). At least we now know that earth is regarded as the mother of life not only for humans, but for all living and the none living Earth

Community, and that when mother Earth “gives birth”, she also receives back some of her children, so to say, who die and are buried in the soils of mother Earth herself. The dignity, value and all the other eco-justice principles are expressed in Job’s experience, even though earth – the mother does not speak of the suffering of her child. Earth’s voice is silent, but she was ready to receive her son, if he died.

Through the sufferings of Job we would say that the Earth Community is subjected and dominated by heavenly powers. Job becomes the subject of contention between God and Satan whereby Job does not have any say, but simply receives the effects of such a contention. In this case we see a member of the Earth Community suffering because of contentious issues in the spiritual world. The storm which killed Job’s sons and daughters was as a result of the contention between God and Satan to test defenceless Job; who still remained faithful to his God, even though at least he cursed the day of his birth. We would assume that when a strong wind strikes, many elements of earth are destroyed. Trees and vegetation are badly affected. Animals too are not spared, but in the case of Job’s story, it was only what belonged to the centre of contention, Job himself and his family who are mentioned. It was the divine and human relationship which was important and earth was voiceless. However the interconnectedness of the Earth Community and their mutual custodianship are expressed in Job’s dependence on mother Earth to whose “womb” he desired to return. (1:22) by returning to mother Earth, Job would escape from the surveillance of the heavenly host and be free from being watched over as implied by Habel (2001:69), for Job earth would be a companion by hiding him from the watchful eye of God so that later he would appear to present his case against God (Job 14:13-17).

Job in 12:7-9 invites sympathisers to observe the Earth Community and what they go through, probably during what science would call natural disasters; but for Job it is trouble from God because of him representing humans. However, God does not sit back, but he responds to Job’s accusations in Job 38-39, although God does not seem to be compassionate towards poor Job and his fellows in the Earth Community. In the chapters indicated above, God is seen to be the one who knows well how earth was built and the purpose for which he did so and how jubilant were the heavenly host at the beginning of making the earth. (Job 38:7) It follows

therefore, that for God, the earth and the Earth Community were important to him, and sustainability must be accorded to the earth and creation in general. Job on the other hand seems to suggest that human beings are more important than any other creatures which Job invites to testify against God's treatment of humans. However, God is still portrayed as he who cares for, and loves his creation, including humans. The bond and interconnectedness of the Earth Community is made possible by God.

It can be seen from the Wisdom Tradition of Job 38-39 that it (tradition/) does not agree with the notion in Genesis 1:26-29 for humans to dominate earth. The interdependence of humans and other creatures does not come out in this portion of the literature, and Habel argues that it... “Challenges the mandate to dominate and opens the way for a new respect, for all creatures as being imbued with wisdom and mysteries of their own” (Habel 2001:189). Deane-Drummond asserts that “...from the perspective of Job, it seems to make more sense to speak primarily of creaturely wisdom as being that which God discovers in creation, rather than that which is imposed by God” (Deane-Drummond 2008:95). Wisdom literature therefore confirms that wisdom is the Spirit of God who fills the earth in what is created (Wisdom 1:6) and that he originates from God, (Wisdom 7:27) “...just as the way to wisdom is a mystery (Job 28), so full awareness of the created world is not known to us, but only to God. We rightly seek to discover this world, but our desire to control it and manage it and so often spoil it needs to be kept in check” (Horrell 2010:67). We would conclude Wisdom literature and Ecology from a hermeneutical point of view by confirming that all the eco-justice principles of intrinsic worth, interconnectedness, voice, purpose, mutual custodianship and resistance are expressed in a poetic manner. Although there is a tension between celebration and praise on the one hand, misery and suffering of creation on the other hand, the importance of Wisdom literature in ecological hermeneutics cannot be over emphasised.

4.6. The ecological perspective of the synoptic gospels.

The synoptic gospels (Matthew, Mark and Luke) are a record of the life story of Jesus Christ in the Palestinian ecological context. Although the stories were compiled much later (about forth century CE), they depict an agricultural rural setting

of the first century CE in lower Galilee (including Nazareth), the valley (including Capernaum and the lake side), and upper (including Caesarea Philippi) (Horrell 2010:71). It is generally accepted that the three regions which contributed to Jesus teaching and proclamation of the kingdom consisted of varying interactions of people with the natural world.

For those who lived along Lake Galilee, fishing and life along the sea drew most of their attention, and Jesus would be seen and heard giving most of his examples and performing miracles (natural) which were related to their experience of life. The stilling of the storm at sea in Mk 4:35-41 is such one example of the natural miracles which would draw the attention of fishermen, including Jesus disciples, who were familiar with such tempestuous situations of the weather.

The mountainous country side of Judea and along the way through Samaria to Galilee with wilderness gave Jesus a sense of solitude. He went away from human habitation, among the wild animals for forty days in preparation for the beginning of his ministry; according to Mk 1:13; Mt 4:1-4 and Lk 4:1-2. The more fertile areas around Nazareth, Bethsaida, Caesarea and along the high ground down to Joppa which were suitable for all sorts of crops were familiar with farming in Jesus reference to the birds of the air which neither sow, reap nor store in barns, according to Mt 6:26, 28-30; Lk 12:24, 27 – 28. The political scenario was dominated by the Romans who invaded Palestine by 63 BCE, although there was a loose autonomy from as early as the second century BCE. There were heavy taxations on Jews until Julius Caesar relaxed them by 40 BCE because the Jews and Egyptians helped him to ascend to power through an overthrow of government in Rome. However the districts which fell under the governance of Herod still paid high taxes; and resulted in revolts by Jewish tribal leaders such as the war which erupted in 70 CE, according to Manns (1998) quoting Josephus Flavius. To this end therefore, we strongly assert that Jesus' life, religious reflections and sayings which are recorded in the synoptic gospels were not only influenced by the Jewish cultural religious background, but that the geographical and social-economic situation surrounding his ministry at the time had its own influence on him and what he conceived of the natural world.

4.6.1. Creation and the Kingdom of God (Mt 6:25 – 34).

The passage of Mt 6:25-34 fits in a wider scope of what is known as the sermon on the mountain in Mt 5:1–7.6 in which Jesus taught many things about life. The passage under consideration (Mt 6:25-34) brings out Jesus regard for the natural wild by referring to the lilies of the field, the wild flowers and the birds of the air when he taught people not to be worried about the physical aspect of life. Jesus did not refer to non-human members of the Earth Community in a derogatory manner, but it was a way of pointing out God's care for all creation. A lesson was drawn from the non-human to teach humans, implying that according to the creator, every creature fits in with its purpose and intrinsic worth in the web of life. That is to say, the voice of earth in the teachings of Jesus about using nature is not suppressed but that he appreciated the natural world.

God in the teaching of Jesus is seen to care for the birds of the air, though they do not sow or harvest. Humans needed not to be anxious about life for as long as they would seek his righteousness. Although the term righteousness is not mentioned in Luke's account (Lk 12:22-32) of the sermon, the central theme was the Kingdom of God; and that the kingdom for Jesus includes the natural world. Salvation according to Jesus is holistic, that is to say, it is for the whole of creation. We agree with Leske who says that the whole Earth Community is tied together. Like second Isaiah, Jesus weaves together the natural and the human world; as part of earth, and so are part of God's creation (Leske 2002:26). The example given in the passage, of the insignificant birds and flowers testifies to the fact alluded to above. Elsewhere in scripture, for example, Job 14:1-5 and Ps 90:3 the comparison of human life to flowers emphasised the short span of humans on earth, in view of the everlasting love of God implanted in the world through the gospel. Thus (Isaiah 40:6-8) proclaims that, "...people are like the grass; their beauty fades as quickly as the flowers in a field. The grass withers and the flowers fade beneath the breath of the Lord. And so it is with people. The grass withers and the flowers fade, but the word of our God stands forever" (NLT).

Therefore, the reference to the flowers and birds by Jesus in his sermon was a way of driving home the point that creation is interconnected and humans are as valuable as other creatures; and that humans should not pre-occupy themselves with such

anxiety that should shatter their hope in the caring God. Jesus wanted his disciples and humans in general to learn from other creatures in order to interpret the interconnectedness of creation and to listen to the voice of the Earth Community. Solomon Victus correctly reflects that, “words of Jesus like ‘look at the birds of the air..., consider the lilies of the field’ are an invitation to watch nature prayerfully and to learn lessons from them (6:26-27)” (Victus 2014:75).

4.6.2 Earth and the Good News. (Mark 1:1–15).

The setting for Mark’s gospel, particularly the prologue is that of wilderness orientation for Jesus, like John who went before him. Combinations of passages from the Old Testament Prophets find fulfilment at the beginning of Jesus ministry. Some of such passages are Malachi 3:1 and Isaiah 40:3. “Look, I am sending my messenger ahead of you, and he will prepare your way. He is a voice shouting in the wilderness; ‘prepare the way for the Lord’s coming! Clear the road for him’ ” (Mk 1:26-3) NLT.

Mark begins his account by saying, “this is the Good News about Jesus, the Messiah, the Son of God...” (Mk 1:1) Jesus himself was/is the Good News for the whole of creation. Loader is correct with his assertion that Jesus brings both the Good News and is the Good News (Loader 2002:29). For the hearers of Mark’s generation the Good News was so eminent that they were looking for immediate results because the Jews were invaded and taken into captivity from time to time.

Unlike Luke 3:4-6, Mark talked about preparing the way for Christ; while Luke adds that valleys should be filled, mountains and hills should be levelled. Although the use of physical and geographical features was figurative, the earth is involved in the ministry of Christ for it to succeed. First it is in the wilderness where Jesus goes for forty days to be tempted. Mark records, like Matthew and Luke that after baptism by John in the river Jordan, Jesus was led by the Holy Spirit into the wilderness and lived among wild animals, but the angels took care of him.

The mention of wilderness, water, wild animals and all that might surround a lonely place is so much evident that Jesus’ Good News was for the whole of creation.

However, as Habel points out, wilderness also served as a battle field between Jesus and Satan. Wilderness became the locus for contention between Jesus and the evil forces. We can also recall how guidance was promised to the people of Israel, and indeed the angel led the Israelites into the wilderness on their way from Egypt in the form of a cloud during the day and in the form of a pillar of fire during the night. (Exodus 23:20) We see overcoming temptations in the wilderness before he would carry on with the mission of the Good News. We see also how the rest of creation takes part in preparing Jesus for his work. The eco-justice principles of intrinsic worth, purpose and interconnectedness were at work and must be appreciated by a modern reader of the gospels. In fact the entire cosmos participated in the inauguration of Jesus ministry because we hear that the heavens opened, the Spirit of God in the form of a dove descended on Jesus and a voice was heard during his baptism in the Jordan. Salvation brought by the Good News of Jesus was for the whole of creation, an indication we wish to emphasize according to Mark and the rest of the synoptic gospels.

Both Bauckham (2011) and Loader (2002) agree with the assertion that Jesus' environment for his ministry was more familiar with the nature and farming practices of rural Galilee (Bauckham 2011:68), than the environment of Paul. Therefore Jesus made more references to the environment around in his teaching, and by so doing embraced the whole of creation with his message. Even though Paul's environment would be more urban than that of Jesus, the life situation in the latter's teaching in reference to animals, birds, trees, grass, flowers and many more testify to the centrality of the Good News, which is earth; and the Earth Community. The above mentioned, in agreement with Loader and Bauckham, is confirmed by Jesus' actions in calming the storm (Mk4:35-41), walking on the waters (Mk 6:45-52), and in the multiplying miracles (Mk 6:35-44; 8: 1-10) (Loader 2002:41). In addition to these acts, healing of various diseases which haunted people and casting out of demons from humans were part of the healing testimony for creation.

4.6.3. The future of earth (Mark 13).

While Christians have been blamed for misinterpreting portions of their scripture, such as Genesis 1:28, to have "dominion over all creation," as the cause for the

current ecological crisis, the gospels and other portions of the Bible present an impending end of the old universe so that new one can be ushered into existence. Dyer (2002) calls such texts as “texts of cosmic terror” (Dyer 2002:44). One of such text(s) is Mark 13 which is attributed to the eschatological narratives of Jesus Christ. In agreement with Dyer, we wish to explore the text and its parallels so that we assess whether humans will surely be responsible for the degeneration of earth and its components, or if they have a good reason to shift the blame on the creator. That is to say, that if Mark 13 is interpreted to mean that whatever damage humans cause to the earth is just a means to its end, after all scripture says heaven and earth will disappear, but my words will never disappear (Mk 13:31).

The Earth Bible principle of the interconnectedness of the Earth Community is applied in relating to what the eschatological text in Mark 13 might imply. The earth and its components are treated universally, as a cosmos where heaven and earth relate to, and depend on each other in order for them to exist. This view is considered in assessing the future or fate of earth, as Dyer terms it, then it follows that the Earth Bible affirmations of the intrinsic worth of the universe and earth (principle one) and the principle of purpose of the universe, earth and all its components (principle four) are also foundational for the interpretations offered here (Dyer 2002:45). Dyer further assumes that “the eschatological convictions that can limit Christian engagement with earth issues may be outlined by suggesting...a fundamentalist Christian version of the Earth Bible Team’s six eco-justice principles”. They are called the six Biblical eschatological principles:

1. The principle of imminent cataclysm – earth is headed for disaster (sooner or later).
2. The principle of disconnectedness – we humans don’t have to share or feel responsible for earth’s fate (Salvation is for humans, not earth).
3. The principle of inevitability – there is nothing we (or earth) can do about it.
4. The principle of transcendence – what really matters is the next world (or heavenism, as Dyer describes it).
5. The principle of sovereignty – God is in ultimate (even direct) control of all this.
6. The principle of self-interest- God will rapture believers out of this mess in the nick of time” (Dyer 2002:45).

The above outlined a so called frame work of attitude and behaviour by Christians who would interpret Mark 13 in view of the six principles would surely render negligence for the care of the earth, after all it is going to disappear, anyway. With this view, Dyer insists that people who believe in the six Biblical eschatological principles, “are convinced that things have to get worse before they can get better, and that they will only get better through the direct intervention of God to bring this sorry planet to an end” (Dyer 2002:48). Such a kind of worldview of the earth does not prompt its proponents and their followers to make policies to address the concerns of environmental degradation and the plight of the Earth Community. Reference to the darkening of the sun, failure by the moon to give light and falling of stars from heaven (Mark 13:24 - 25) in reference to Isaiah 13:10;34:4; and Joel 2:10 cannot be adequate justification to neglect human responsibility to care for the earth and the Earth Community, including humans themselves.

While Mark 13 might be considered to be referring to earthly battles, some of which have been experienced by humanity as humans own fault, such as the destruction of the Temple in Jerusalem in 70CE, the first and second world wars, the Jewish holocaust, the nuclear disasters in Russia, Japan and many battle fronts around the world, the Israeli – Palestinian exchange of rocket fire and the like. The interpretation of Mark’s prophecy with regard to the end of earth should not be relegated to fundamentalism. Fear of a nuclear meltdown as a contemporary world view of the end of the earth seems to equate the apocalyptic end in Mark 13 and others such as 2 Peter 3. However whether the earth will just end with God’s intervention or through a catastrophic experience in human history, such as a nuclear meltdown, Dyer suggests that, “we should confront the world view presupposed by the gospel of Mark and expose its inadequacies for meeting today’s problems” (Dyer 2002:47).

Keith Dyer proposes that Biblical text and human experience, “Portray heaven and earth as interactive parallel universes, where heavenly messengers and humans in dreams and visions may cross the boundaries and ‘time zones’ on an everyday basis” (Dyer 2002:49). This assertion, we want to admit, is in support of the eco-justice principle of the interconnectedness of the cosmos, in this case, an extension to the interconnectedness of the earth and components of the Earth Community; and

that each level and sphere in the cosmos has a purpose to contribute to the whole. In fact cosmological purpose transcends time and space as implied in Mark 13. The passing away of the heavens and earth we assert, is simply a renewal of the cosmos to fit in the paradigm of peace, according to the envisaged Kingdom of God.

Moreover, the reference to “this generation will not pass from the scene before all these things take place” (Mk. 13:30) by Jesus gives us an idea of when the incidence in the text under consideration might take place. A generation in the time of Jesus was a period of about forty years. That still counted towards the destruction of the Temple in 70CE. Could it be that Jesus’ reference to the darkening of the sun and falling of stars were figurative or metaphorical as it is in Luke 16:17 where it says, “...it is easier for heaven and earth to disappear than for the smallest point of God’s law to be overturned” (NLT). The parallel passage in Mt 24:29-35 to Mk 13-cannot be taken as figurative in all aspects, as Dyer suggests with the benefit of doubt for the texts whose context he argues, resists to be retrieved from the thin of earth. Mark 13:4 is Jesus disciples question as to when the end would be; and Jesus response first addresses this question in reference to the destruction of the Temple. However, the response by Jesus that heaven and earth will pass away seems to address the events of a single final day. Jesus said he did not know the day or hour when that final event would come.

Revelation 21:1 with regard to the new heaven and new earth may serve as a solution to the understanding that the current heaven and earth will be done away with terribly. We support the assertion that the earth and the heavens are components of the cosmos, which still enjoy intrinsic worth and mortality, and that the transcendence of God rules over any assumption as to what the fate of the universe would be. That is not to say that humans should hasten to rejoice in the end of the current earth. They have a responsibility to sustain it, so that it can sustain them and their future generations as part of the Earth Community, for no one knows the day or hour when these things will happen, not even the angels in heaven or the son himself knows. According to Jesus, only the father knows (Mk 13:32).

4.6.4. The image of the plough in Luke 9:62.

The above captioned passage is being cited in the light of Isaiah 2:4, and Micah 4:3 with regard to the end of terror against the earth. In these prophetic passages it is hoped and declared that “the Lord will mediate between peoples and will settle disputes between strong nations far away. They will hammer their swords into ploughshares and their spears into pruning hooks” (NLT). Although the plough in Luke 9:62 is used as a symbol of commitment to discipleship by Jesus when he said “No one who puts a hand to the plough and looks back is fit for the Kingdom of God;” it is to a large extent a symbol of technological advancement and destruction that “has wreaked havoc upon earth” (Cadwallader 2002:58) as Cadwallader rightly puts it. The plough has been viewed also as a symbol of human male dominance over female humans in ancient Palestinian and Mediterranean pastoral and farming communities. Agriculture as a practice appears frequently in the gospels, asserts Cadwallader, and rightly so, but the tool – the plough appears only in the work of the authors familiar with a more developed method of cultivation and these are Luke and Paul. (Luke 9:62; 17:7; 1Cor 9:10) (Cadwallader 2002: 59)

Looking behind while working on the plough was a sign of non-commitment to the work of cultivation as a parallel to following Christ and thinking of family, as the case was in Luke 9:62. We wish to argue against the notion that the use of the plough in the passage is literally in reference to male human dominance over female and that earth in this case is the dominated; even though the practice of cultivation has caused a lot of misery to the earth in many places of the world. The passage in question was dealing with discipleship, and not necessarily domination of earth. The intrinsic worth of earth and its purpose is upheld in the passage, the metaphor of cultivating land with a plough also signifies the dependence of humans on land (earth) and so the purpose is retrieved thereof.

Luke 9:62, which is associated with “Q” source if read with Lot’s wife in mind (Gn 19:26), when she looked back as Cadwallader asserts, we realise that women from inclination are vulnerable and prone to slipping back into their old life because traditionally men are more familiar with ploughing than women, hence “neither male nor female is inherently pre-determined to stereotyping behaviour – hence women

and men are released from any predisposition to either promiscuity or rapaciousness" (Cadwallader 2002:71). With the aforesaid, then we rule out the subjection of earth to inhuman treatment symbolised by the use of a plough. Keeping Isaiah 2:4 and Micah 4:3 in mind, it is imperative that the plough can be forged into something destructive to human life and, that a weapon of war can be forged into a plough for cultivation. Therefore, the plough is no threat to earth, but that earth must celebrate its worthiness for all its components for its purpose to sustain the Earth Community.

4.6.5. Divine providence in Luke 12:13-34

The gospel according to St. Luke, is generally agreed by scholars to have been authored by Luke himself is dated towards the end of the first century CE, say 80-85 CE. (Howley (Ed.) 1979) Luke's sources included both oral and written traditions. Howley (1979) in agreement with other scholars indicates that as part of the written sources used by Luke, Mark's gospel is one of them. Other materials used by Luke are only common in Matthew and not found in Mark; they belong to source "Q".(Guthrie1970:88) Those that are not found either in Matthew or in Mark includes oral teaching and stories about the upbringing and childhood of Jesus Christ. The passage under consideration, in the light of the eco-justice principles according to the Earth Bible Team carries two of the major teachings of Jesus Christ: 1. the parable of the rich fool, which in itself is a warning against greed and covetousness (12:13-21). 2. Warning against worldly anxiety, as in Matthew 6:25-34 (12:22-34). The passage falls within a large portion of Jesus teaching about the kingdom of heaven. It has a lot of common features with the Sermon on the Mount in Matthew 5-7. From an eco-justice perspective, Anne Elvey declares that "The decay of dead organisms contributes to the life of others. But in so many ways we deny death" (Elvery 2002:95). Her declaration is a fact of the web of life. The two stories in Luke 12:13-21 and Luke 12:22-34 are indeed connected by a metaphor of storage of excess food or grain by the rich man. Being futuristic in terms of storage is not as bad in itself, but it is the consumerist and utilitarianism mind set on the part of the rich man that tends to devalue earth, as opposed to the worry and anxiety shown by one of the brother's in the first story. We agree with Anne Elvey when she says "there is an inherent violence in displacing the intrinsic worth of earth in favour of an

instrumental evaluation of earth. Approaching earth principally as a resource has in practice led to the violence of, for example, overfishing seas, over farming land, and indiscriminate logging of old growth forests" (Elvey 2002:98). The mind set of storing up by the rich man, although we do not know how long such stored grain and other food stuffs would last him, attaches so much devaluation of the earth, as indicated above.

On the other hand, when humans worry and become anxious about what they may eat and wear in the future, there is divine providence, as Anne Elvey calls it. We agree with her in that the intrinsic worth of earth is stressed when the narrative compares human worth to that of birds of the air and water lilies. But again, in comparison, two issues are raised: the hierarchy of humans above other non-human creatures is controversial, and yet the providence by God is for all creation. Earth is seen to be devalued in the anthropocentric understanding of the text, even though God's providence is for all. In the passage, earth is a teacher to humans when the disciples are invited to learn from the birds and grass (lilies). The Earth Community who depend on each other are equally provided for by divine intervention; hence no need for hierarchical tendencies "which privileges humans over other – than – human earth constituents..." (Elvey 2002:106) the storing by the rich man in the text is referred to as storing of death which motif is condemned because it dispossesses others as humans, who equally deserve attentiveness as Anne Elvey puts it. The motif of the text brings in the question of stock piling of mineral resources by the industrial West at the expense of the communities and nature where these resources are extracted from. Both the owners of mines, who we associate with the rich fool and the poor communities, and devalued polluted environments of the mining towns, which we associate with the birds of the air and the lilies, depend on God's divine providence. However, the mine owners store up for death as it were, because they do not know whether or not they will consume it all before they die.

4.7. The value of Earth in the Gospel of John.

While the first chapter of John's gospel is used for the teaching on the doctrine of incarnation, the trinity and Jesus' purpose of coming to earth, a critical reading of the same from an ecological hermeneutical perspective allows us to assess the value of

earth in the gospel. The dualisms of a western oriented mind cannot be avoided in carrying out what we would call critical ecological hermeneutics in particularly John chapter one. Such dualisms include those that separate heaven from earth, physical from spiritual, human from non-human, flesh from spirit, sacred from profane, subject from object (Habel 2000b and 2002). Both Genesis 1 and John 1 refer to the beginning of creation, and even before anything were created, as the situation and locus of the narratives. Habel poses the question of whether John 1 re-reads Genesis 1 in a dualistic way that tends to devalue earth and the physical universe (Habel 2002:77). According to Genesis 1, the created heavens and earth consist the cosmos, and as Habel points out, it was indeed a physical cosmos without a spiritual dimension. The dualism of earth and heaven in this passage does not seem to favour heaven as superior to earth. The two are equal and created at the same time, even though one is a canopy like (heaven) or cover over the other (earth).

However, reading John 1:1 in the light of Genesis 1 invites suspicion of the text. John 1:1 reads “In the beginning was the Word,” implying the Word or the *logos* was already in existence. Verse three confirms that everything was created through the Word, giving us the impression that the cosmos of Genesis 1 was created only through the Word who existed before it (cosmos) existed.

The earth according to Genesis 1 provides for God that which is used for life – both animal and plant life; except that such life is completely physical, that is to say, there is no spiritual aspect to it. John 1 introduces the concept of light, as Habel rightly asserts, that “life is explicitly identified as the light of humans...” (Habel 2002:79), although the light mentioned in Genesis 1 is represented by day, stars and the moon. It is so physical that it only shines for the physical world such as land, trees and animals. John’s text talks about light for humans like the one Jesus spoke about in John 8:12. This is the spiritual light and those without such light walk in darkness. At least we begin to see that John’s text about ‘the beginning’ introduces the devaluing aspect of earth. The physical earth and its components is without value until the spiritual light represented in the Word comes to earth, then earth becomes alive with a spiritual status, according to John.

The earth is set to be the platform where creation activity was carried out and according John 1:14 the word became flesh and dwelt among humans (and of course with the non-human). The light came to a world of darkness to give it life, meaning that the physical world the earth was without value in the absence of the Word that is the light. Therefore the suspicion that earth in John 1 is not valued according Elizabeth Wainwright is correct (Wainwright 2002:83-88). The resistance reading of John 1 can be achieved by inter textual reading with other passages such as Proverbs 8:22-31, Sirach 24:1-2, and Wisdom 7:22-8; 8:1. Here we agree with Wainwright in that the poem in John 1 is a repetition of the three texts in the Wisdom literature with regard to *Sophia* / Wisdom that can be represented by the Word and even Jesus himself. We say this because both the Wisdom texts and John are in praise of the one *Sophia* who existed before anything such as hills, mountains, seas, clouds, sand and all that was created came into being.

It therefore follows that if the Word was present at creation of the physical earth, and he himself put on the physical body when he became flesh, then earth cannot be completely relegated to the physical darkness in a devalued manner. We strongly suggest that earth and everything in it has an intrinsic worth because God said that all creation was good, and the following points are considered in agreement with Vicky Balabanski's assertion that the term cosmos "...in John's gospel appears no less than 78 times (contrasted with only three in Mark and Luke respectively, and nine in Matthew's gospel). However, in John's gospel it is a term that has shifting semantic value." (Balabanski 2002:89-90). The first portrayed picture of John 1 is that of earth as a playing field where the light comes to shine upon darkness represented by earth. Without this light which is the Word from above, the earth was rendered valueless and mere matter; to be considered valuable only with the light that came to shine upon it. Thus, the intrinsic worth of earth is shattered and its voice cannot be heard. Earth is just an arena, as Balabanski calls it, where the drama of salvation for humans is carried out.

John 1 also portrays a picture of totality of the universe in which earth and heaven are included. The entire creation is addressed. This is exposed in the fact that the Word became flesh and dwelt among humans. (John 1:14). The interdependence and interconnectedness of the Earth Community are principles which we see being

upheld in this picture of earth. Third, the reference to human beings “who refuse to acknowledge their source” (Balabanski 2002:91) as it were, portrays a world or earth of only humans and sinful nature. This is the world which did not know the Word as referred to in John 1:10c, and this picture of the earth stands out prominently. In this case, the world is centred on humans and their livelihood. Judgement is proclaimed for the world of humans, unless they acknowledge the Word as their source, through whom they were created. This leads to the fourth category of earth where heaven and earth are on opposing sides. The kind of dualism alluded to before is fully expressed in this portrait of the cosmos which is in conflict, to use Balabanski’s words, with God. This is the world for which Jesus did not pray, or literally refused to pray for in John 17:9. This is a world of human beings with controlling spiritual forces such as evil spirits and demonic beings.

Having analysed the categories by which earth or the cosmos is referred to above, the best view we can hold on to from the perspective of eco-justice principles is that Jesus, the Word was sent to save the world according to John 3:16, because He (God) loved the world. Salvation in this case is in totality, it is for human and non-human inhabitants of earth. Humans cannot be saved alone because they belong to a community of the creation order in which the web of life is such that all are interdependent. The eschatological view of saving the world would even be closer to expressing the intrinsic worth of earth and the Earth Community. We strongly argue that the kind of salvation for the earth’s resources we advocate for is by educating humans with the gospel of Jesus, so that they are mindful of their responsibility in the shared life of the cosmos. Chapter five of the study illustrates how humans of various categories and societies can achieve what we would call the ethical use of nature. The mines, which are operated by humans, are at the centre of the thesis so that other forms of industry can be informed in the manner they handle nature.

John’s gospel has less value for earth without the Word, Jesus. Value is only added to the earth when the Word shines upon it out of God’s love who desires to serve it. Unless humans respond to God’s love expressed in Jesus, earth is destined for doom, according to John. Therefore the healing and sustaining of creation in and around the mines, we argue, largely depends on the acknowledgement of the Word by humans who are the mine owners and operators. The written Word must be

interpreted in the light of how the Word who was sent to save the world loves the whole of creation. The methodologies and praxis for the interpretation of the Good News to all creation is considered in chapter five.

4.7.1. Earth heals earth (John 9:1-11)

John's gospel is distinctive from the earlier three in that he depicts the Word of God as living and active (Howley 1979). "The authorship is definitely attributed to a Jew who could have been living in Ephesus towards the end of the first century" CE (Howley 1979). Both the gospel of John and Revelation (Apocalypse) are confidently attributed to John the apostle for authorship. The passage in John 9:1-11 comes after a confrontation between Jesus and the Pharisees in John 8. Jesus authority was questioned after he declared forgiveness upon a woman who was caught in adultery. Later He was almost stoned when he claimed that before Abraham, he existed. John 9:1-11 consists of a story of a man who was born blind and Jesus healed him by smearing his spittle (Jesus) in the blind man's eyes and made him wash in water. The value and use of water in this passage is significant. In African Traditional Religions, and particularly the *Lamba* people of the Copperbelt, water is connected to religious beliefs about life. Oyeronke Olajubu (2002) says, "Water, in all religious traditions- from the most ancient to the most contemporary, indigenous and the world – famous religions has been noted to transcend its scientific explanations." (Olujubu 2002:108).

Water has an intrinsic worth which users don't usually acknowledge as the utilitarian attitude in them seems to supersede its value. Even though water in the passage would be quickened by the life giving personality of Jesus as the living water, it is worth noting that water is an integral element of all living things on earth. De Klerk in his article on baptism and water pollution argues that "water often moves us to wonder, joy, terror or peace, and many times, water- whether it's the awesome power of ocean waves, the cold upwelling waters of a spring, a small, still pond, the sound of a mountain stream flowing over rocks...or hot spring rising mysteriously from the earth – moves us to prayer" (De Klerk 2014:2). Water played an important role in the healing of the man's eyes. Indeed it was a wonder which moved the

healed person to joy, and those around him to wonder and terror. In most cases the volume of water does not matter, particularly in religious matters. It is the use that matters. Two eco-justice principles are illustrated in the passage with regard to water, as an earth component. The first is that of the intrinsic worth of water, spittle is water that made mud which was smeared on the man's eyes. He was told to go and wash in the pool of Siloam which means sent (John 9:6-7); another earth component is brought in for the healing action and this is soil for making mud which was only washed off from the man's eyes in the pool. The man who was a product of earth had his sight restored, because from dust he was created, and dust (mud) with water was used to heal him. How interconnected are components of the earth in this narrative; thus the principle of interconnectedness is very much involved in agreement with Olajubu's assertion. In this act of healing the *Lamba* people's regard for water as mother is expressly illustrated. The view is held by the *Lamba* people of the Copperbelt in Zambia, like many African peoples because when a child is born, water is the first element to touch the child's body as it is used to wash off the birth fluids. No child can survive without water and the mother's breast milk, or its substitute which is nearly 99 per cent water. Water is used for bathing, drinking, washing, cleaning and all sorts of human animal and plant needs, all are dependent on it. Water is valuable and perceived as sacred in many cultures, both in the West and other indigenous settings, like the Yoruba of Nigeria in West Africa whose "need to protect water from contamination and pollution is informed by their perception of water as being sacred and imbued with power" (Maier 2002:174).

The intrinsic worth of water cannot be overemphasised even in the Christian churches where it is used for the baptism of new converts and all the elements of holy communion or celebration of Christ's last supper with his disciples are basically made with or by use of water. Jesus described himself as the living water in John 4:10 and it was by the use of water as a symbol of his personality that Jesus healed the man. We strongly contend therefore, that water is sacred and its intrinsic worth should not be interfered with in any way. Worth noting also is the fact that water, wherever it is found does not exist in the abstract, that is to say, without associating with what we would call a container or embodiment. Water mostly is found on land, contained in rivers, lakes, seas, oceans and plants (trees, grass, vegetables) the sky or atmosphere and in the air. It therefore follows that water can be the easiest source

of livelihood to be polluted unless extra care is taken by human inhabitants of place or space in the cosmos. We therefore totally agree with Olajubu when he asserts that “entrenching a philosophy that elevates water’s intrinsic worth and the interconnectedness of water with other elements of nature, humans and the divine, is an important step in the successful implementation of global strategies to preserve water’s purity, and protect it from contamination” (Olajubu 2002:121).

The Christology in John’s gospel therefore is emphasised by the fact that while he is portrayed as the light of the world and the water of life; water itself interconnects the living and non-living components of the Earth Community, and thereby connecting the rest of creation with the creator. In baptism for instance, water is a symbol of cleansing, washing of sin and assurance of salvation both in the Old Testament and the New Testament. In the Old Testament, when the priest was about to conduct a sin and a burnt offering, he would bathe his body in water before putting on holy garments. (Leviticus 16:3-4). In the New Testament, “...John proclaims a baptism of water for repentance – a baptism marked by a decision to turn away from sin and towards God”(De Klerk 2014:3). Subsequently, Jesus commissioned his disciples to baptise followers in the name of the Father, the Son and the Holy Spirit (Matthew 28:19). Water is an agent in symbolising purification, and indeed there is a need to use it in a sustainable manner in all generations. We will discuss water and its pollution in view of baptism and liturgical functions in the framework.

4.8. God’s throne and the position of earth (Acts 7).

The authorship of the Luke/Acts narratives as they are usually referred to is undoubtedly attributed to Luke. The prologue to both narratives of Luke’s gospel and the Acts of the Apostles emphatically point to one Luke, the Gentile proselyte himself. The “we” passages in the Acts narrative is evidence enough for us to accept that Luke was a travelling companion of Paul, though only later in Paul’s missionary journeys. It is deduced from Acts 16:10 that Luke joined Paul’s missionary team at Troas (a coastal town), and the plural third person referred to as the “we passages” start from here. The date of writing for Luke’s second narrative is closer to the time Paul the main character spent in Rome on appeal to Caesar. The date should be by around 64 CE (Howley 1979), just before the great persecution of Christians by

Emperor Nero starting that very year, during which Paul is believed to had been executed. Acts' narrative gives us characteristics, challenges and humble beginnings of the early church, spreading from Jerusalem to all the major provinces of the Roman Empire. The passages of our attention are: 7:3-7, 33, 49-50 which we must explore to investigate the value of earth in relation to the throne of God. The entire chapter 7 falls within a scenario of great persecution for the early church, and dispersal of believers who continued to speak and share wherever they went about the Good News.

The first portion of Acts 7:3-7 to which we draw our attention is the beginning of Stephen's defence before his accusers and the high priest was chairing the meeting of accusers. Stephen's defence begins with the account of how God called Abraham to leave the land of his birth and his people to go to the land which he was going to be shown. Further, God told Abraham to leave that second land (Haran) to another land (Canaan) though not yet given as inheritance to him or his descendants. The whole passage is according to Trainor, "packed with either explicit earth language or references to earth, and reveals Luke's opinion of land as unredeemed, devalued, and disconnected from human beings and in need of divine rescue..." (Trainor 2002:128). From the perspective of eco-justice, the principles of intrinsic worth and interconnectedness of earth are not ascribed to earth. Earth is just seen as an object for humans' use and settlement as in Genesis 12:1-9. Colonisation was inspired by search of land right from the time of Abraham. In fact land became the source of conflict and it has continued to be to this date.

We see how Abraham and his family in the passage were separated from the land of their birth when he was told: "leave your native land and your relatives, and come into the land that I will show you" Gn 12:3, (NLT). Here Trainor's assertion that "...land is an object of settlement from where the principal actor and representative image of the faithful person, Abraham can easily leave..." (Trainor 2002:129), is enough evidence that earth in Acts is devalued, and does not interconnect or integrate with humans, at least in the case of Abraham. Only God is at liberty to instruct Abraham to leave land and occupy land, Abraham and the land / earth itself have no choice. The voice of land of course cannot be heard in this instance. However, when we compare how human movement causes damage to land, then

we would be able to lament at earth's voice of being an object for human settlements although earth's voice is suppressed in the passage. Earth is used, or to use Trainor's words "is regarded as a boundary that marks off one cultural group or nation from another" (Trainor 2002:129), that is to say, that anyone who wants to be different from their kindred can use land location by moving from one place of habitation to another. In other words land representing earth is used to alienate humans from one another thereby creating unnecessary variations and enmities in the human race; and yet land or earth is silent about what happens to humans and to its degenerated condition as a result of human movement.

Acts 7:33 is an account of Exodus 3:5-10 when Moses was commanded by God to take off the sandals because the ground or land where he was standing was holy. Of course the presence of God who appeared to him in the form of a burning shrub made the whole surrounding place holy for human encounter with God. Here we see earth regaining its worth by being regarded as holy. God declared that portion of earth as holy for commissioning Moses to liberate the Jews from Egypt. We also see the association of the human body of Moses with earth on which he had to stand bare foot in order to be addressed by God. The popular liturgical saying of earth to earth, so to say, because from earth Moses was created is illustrated in Moses' encounter with God. Can we say that earth is reconciled with one of its products, Moses by the direct contact of bare feet?

The argument at hand here is that land or earth is sacred wherever it is found, inhabited or habited. Earth has a destiny designed by God, and any component thereof must be treated with dignity. The above cited notion of valuing earth in Acts 7:33, is echoed by the song in Luke 2:14 by the heavenly host who announced the birth of Jesus to the shepherds at night when they sung "Glory to God in highest heaven, and peace on earth to those with whom God is pleased" (NLT). Again God through Jesus' birth bestows a blessing upon earth. The earth is dignified, and all inhabitants are blessed along with the earth, provided that they please God or that God is pleased with them. However we agree with Trainor who argues that earth is finally considered holy "from an inherited cosmological duality that permeates the Mediterranean world of Luke's audience and the Septuagint version of the first testament" (Trainor 2002:132).

Acts 7:49-50 provokes a suspicion that earth is not valued because it is regarded as a resting place for God's feet. Even though the writer has the Temple in mind, the hierarchical dualism dominates the passage. "Heaven is my throne, and the earth is my foot stool. Could you build me a Temple as good as that? Ask the Lord. Could you build me such a resting place? Didn't my hands make both heaven and earth?" (Acts 7:49-50) (NLT) We belong to cultures which always believe and contend that heaven is superior to earth in the usual dualisms of good and bad, sweet and bitter, low and high, dark and light and so on. We argue that in the passage cited above earth is not devalued at all. If earth is a foot stool for God, a resting place for his feet, then earth is blessed because earth enjoys interconnectedness with heaven and the entire cosmos is filled with God's presence. We further contend that earth is referred to as God's resting place for his feet because earth is the arena for God's salvation activity from the time of creation through Christ's birth, ministry, death and resurrection. However, we do agree with Trainor when he says, "what looks like Luke's critique of a Temple-centred theology is rather a judgment on a form of human conduct that seeks to control God's action" (Trainor 2002:133). Indeed this simply represents human behaviour and opinion as also alluded in Isaiah 66:1-2. The Temple was the centre of religion, but culture and leadership structures dominated it so much that God's plan for the people could no longer be paid attention to within its leadership and administration.

The statement itself, which is an indication of God stepping on earth and setting his throne in heaven, illustrates the intrinsic worth and interconnectedness of earth and the Earth Community. The transcendence of God is illustrated in the passage, otherwise no part of God is less holy, such as his feet which rests on earth. It is with the realisation that earth is intrinsically worth and interconnected that humans need to be careful in the manner they handle non-human creatures, even as they advance themselves by extracting minerals from the earth's domain; responsibility has to be exercised at all cost. But who speaks for earth, when governments and investors are blinded by so called development, stock piling of materials by western governments behaving like the rich fool and over consuming even beyond what earth can provide.

4.9. Eco-Justice in the Pauline Epistles

Out of the epistles attributed to Paul, we shall consider few of them as a way of assessing the concern for creation in the early churches of the apostolic era.

4.9.1. The groaning and liberation of creation in Romans 8:19-23

The epistle to the Romans has become one of the most frequently quoted scripture portions in the wake of ecological crises. David G. Horrell insists that “despite the evidence that some people of the ancient world experienced and reflected upon different forms of environmental degradation, few would assert that such issues feature explicitly in Paul’s writings, or that the fate of nature, or the relationship between humanity and our planet’s ecosystems were major issues for Paul as they are in much contemporary debates.” (Horrell 2010:65) .Most commentators and scholars including Karl Barth, admittedly accept the word ‘creation’ in the passage to refer to both human and the non-human creatures. Some Church Fathers however restricted the word either to humans or the non- human creation. These include Calvin, Luther, Augustine and Ambrose. (Horrell 2010:67).

The interpretation of the passage is both Christological and eschatological. However the temptation to confine the meaning to the final salvation of creation should be avoided. Further, what does Paul really imply when he starts the story by “we know that...?” (v.22) we agree with most commentators who indicate that”... Paul is here appealing to knowledge that he can reasonably presume his readers share.” (Horrell 2010:71). It follows that the groaning or travail by creation was experienced even at the time of Paul. Relief and liberation of creation has been an on-going programme from an eco-justice perspective.

4.9.2. Christ and the whole creation from an eco- justice perspective: Ephesians 1.

The favoured date for the writing of the letter to Ephesians is 60 -61 CE. This is the period when Paul was believed to have been imprisoned in Rome. There is no mention of his release in Ephesians, although Philippians which could have been written at the same time but later, refers to his release (Phlp 1:19–26) (www.ConciseNewTestamentSurvey @ 2013 Bible.org). Of course Paul was released from prison, but taken in again until his martyrdom around 64 CE. The unity of the church

through Christ comes out through the epistle. Christ as the head of the church (1:22, 23) gives blessings to his body the church, and its individual members. (1:3, 2.11–22). Reading Ephesians1 from an ecological perspective in view of the Earth Bible Team eco-justice principles exposes “a central motif of the epistle...the movement of all things from creation through redemption to an ultimate purpose: their unity in Christ” (Flor 2012:138). Creation here includes earth and other earth components, a notion for which we argue that earth is valued in this portion of the epistle. This is expressed in Ephesians 1:9-10. The plan of God to fulfil his wills, that “at the right time he will bring everything together under the authority of Christ – everything in heaven and on earth” (NLT).

We affirm what we have cited elsewhere that promised salvation is not only for humans but the entire creation is in need of it, the entire universe including earth and its components. We find the same inclusiveness in Romans 8:16-22, that “with eager hope, the creation looks forward to the day when it will join Gods children in glorious freedom from death and decay... for we know that all creation has been groaning as in pains of childbirth right up to the present time” (NLT). The authority of Christ is eschatological referred to in this passage but we contend that earth and the Earth Community looks forward to being delivered from all oppressions such as exploitation of humans by other powerful humans, the depletion of species and natural resources with impunity, by invading their habitat and various forms of pollution including consumerism attitudes. Elmer Flor (2002) contends that “the writer attempts to counter a dualistic approach to redemption, which erroneously proposed a movement from evil to good, from darkness to light, from matter to spirit, from earth to heaven...” (Flor 2002:138).

The mystery referred to in Ephesians 1:9 in our view is the fulfilment of the redemption of creation as a whole, and it is to be revealed according to Gods plan. This is in conformity with the fact that “through him (Christ) God created everything in the heavenly realms and on the earth” (Colossians 1:16) (NLT). Therefore the eco-justice principle of purpose for all that was created in the cosmos fits into the text. In this way Christ’s headship of the body also alludes to interconnectedness of all in heaven and on earth, believers included. This is indeed unity of creation at its best,

expressing part of our theme for the study *oikos*, a house-hold status of creation in which Christ is the head of the entire household.

Although there is an implication of a hierarchy in the model of a household where Christ is the head of the church which is his body, as emphasised in Ephesians 5-6, it is a situation of such unity and interconnectedness in which each part of creation mutually depends on others, and without others, the value of such a component cannot be granted, Christ himself being the centre. In the interconnectedness of all the created, the kind of leadership is one in which the members support and evolve around the head and the head in return gives meaning, value and coherence to the whole body of creation, including the church. The cosmic Christ in Ephesians 1 has a relationship with the material world for the latter's redemption, humans included.

The eco-justice principle of custodianship cannot be avoided with the view that Christ as head of the body and all other members are in support of each other as leadership and headship is ascribed to Christ not by creation, but by God the father. Believers in Christ therefore, according to Ephesians 1 become co-workers with God in Christ, if co-workers, then what would their role be with regard to care for non-human creatures. We argue here that If all creation is to be "gathered up and reunited in Christ as their head" (Flor 2002:143), those with responsibility to manage the affairs of creation will be accountable to Christ. Some eco theologians and environmentalists have termed the treatment earth in particular has received at the hands of humans as "rape" "mutilation" and massacre. Ripping open the land by mining companies in search of minerals is no exemption of such practices that tend to "rape" the earth and leave it in a deplorable state.

The assertion of a futuristic activity of redemption of creation by Christ is evident in the statement that: "at the right time he will bring everything together under the authority of Christ" (Ephesians 1:10). Everything in heaven and on earth refers to the whole of creation, and the right time is only known by God for neither the son could tell when it will happen. This is time with a space of time, not in a linier of events as the worldview of time may demand.

4.9.3. The role of the Church in Christ's headship.

Elmer poses a question that "if the cosmic reign of Christ is located in the church, then the church is apparently the body that rules for Christ in creation. And if so, is that rule to continue the work of the cosmic Christ in bringing things together- both in heaven and on earth..." (Flor 200:143). Ephesians 4:7-10 answers Flor's question in part; for the text says, "However, he has given each one of us a special gift through the generosity of Christ." That is why the scriptures say, "When he ascended to the heights, he led a crowd of captives and gave gifts to his people... and the same one who descended is the one who ascended higher than all the heavens, so that he might fill the entire universe with himself"(NLT). That is to say that Christ has started the work of uniting creation under his rule by his incarnation, death, resurrection and ascension to higher levels. The gifts he gave and continues to give are to his people represented by the church. It is worth noting that the church is not the Kingdom of God, but it represents the means to the kingdom and rule of Christ. The unity of the earth and the heavens have already been worked out in Christ, therefore what remains is the " summing up of all things..."according to Elmer Flor (Flor2002:143).The church therefore has a task to carry out on behalf of Christ before summing up in eschatological terms. How the church should take up the task on behalf of Christ and indeed with Christ is illustrated in the theological framework in chapter five.

The unifying power of Christ is different from colonial power, such as the Federation for Northern Rhodesia, Southern Rhodesia and Nyasaland (Zambia, Zimbabwe and Malawi respectively) which were unified in 1953 to 1963 for the purposes of benefiting the colonial master and deplete mineral resources from the Copperbelt of Northern Rhodesia to develop Southern Rhodesia, the apartheid regime in Southern Africa and their sponsors in Europe, particularly the United Kingdom, through the British South Africa Company (BSA company). Christ's unifying power is to enrich the cosmos as opposed to colonialist intentions of unity. We strongly hold the view that when people are colonised or oppressed, even their natural resources are at risk of being mismanaged because the people have no power of their own to decide for their environment. On the other hand, economic neo-colonialism entails that the so called investors have money which they use to deplete, devalue and take away

earth's components. According to Ephesians 1 and the related passages (v23), as Flor rightly note, "...this fullness also includes the presence of grace within nature; creation should therefore be respected as the tent in which human beings live respectfully as the redeemed people of cosmic Christ." (Flor 2002:147); that is to say that if nature is not respected and not conserved, even humans in a particular context are not respected, and the effects of such ill treatment of nature can bring catastrophic results to human beings at a global level. The effects of climate change are a good point of reference here.

The *Mukula* tree species whose scientific name is *Pterocarpus chrysotrichx* which grows in select portions of the country (Zambia) is under threat of extinction due to illegal cutting and exportation by foreign investors who come in and take advantage of the locals who can harvest wood for domestic use according to the Forest Act of 1973. Many other valuable species of trees, animals and precious stones are depleted in most cases with the help of the citizens.

4.9.3. Earth and human strangers in Hebrews 11

The authorship of the letter to the Hebrews has been debated inexhaustibly. Even its destination is one aspect of the epistle which has not been fully resolved. However, it has been generally accepted that the Greek language in which it was written is good. The style and order is also one of the best in the New Testament. Comparably with Pauline epistles, there is such a variation that most scholars decline to associate it to Paul, but assert that may be one of his companions could be the author. Hawthorne in Howley's edited work argues that "the style of the writer of Hebrews is unique in the NT, and exhibits none of those peculiarities characteristic of Paul's letters" (Howley 1979:1579). Nevertheless, the epistle is part of the canon because it contains valuable teaching particularly on priesthood and the Temple from the perspective of Jewish traditional worship. The Greek translation of the Septuagint was gradually quoted in Hebrew by the writer, which might suggest that maybe it was meant for Greek Christians. Hawthorne further argues that "such expressions as 'repentance from dead works and of faith toward God' (Heb 6:1), and 'purify your conscience from dead works to serve the living God'" (9:14), seems certainly to indicate that they were not wholly Jewish, for in spite of his many failures the Jew did

render service to and have faith in the living God" (Howley 1979:1581). Now that we cannot prove the other, but partially agree the destination to be of Greek descent, let us turn to the text of our concern and assess how humans and earth are treated. The text under consideration falls within exhortations to persevere and warning by the writer. Faith is first and foremost defined in Heb 11:1-2 as the basis of one's hope. Without faith it is impossible to persevere, and here we are talking about perseverance on earth in various situations. Faith is actually defined, according to Howley as "an attitude of mind towards the future and unseen that is determinative for personal conduct in the present..." (Howley 1979: 1607) It is basing on this kind of a definition for faith that the writer of Hebrews sets up a list of heroes of faith but sojourners on earth looking forward to a better place beyond earth, a city prepared for them. The writer confirms that "all these people died still believing what God had promised them. They did not receive what was promised, but they saw it all from a distance and welcomed it. They agreed that they were foreigners and nomads here on earth... but they were looking for better places, a heavenly homeland" (Heb 11:13-16a) (NLT).

The list of those who died while looking forward to a promised city, a better place starts with Abel, and runs through to Enoch, Noah, Abraham, Sarah, Isaac, Jacob, Joseph, Moses and Rehab the prostitute. All those waited with faith in what they did, looking forward to a better place, not earth. Do we then say that earth is looked at as invaluable having hosted all those people and tribes for generations? It is not the case when we read the passage from an eco-justice perspective. The view that earth is a transitory place exposes it to abuse and devaluation by those who call themselves pilgrims or travellers passing through. "Earth becomes nothing more than an object to think with, to be manipulated, spoken of and ultimately trashed once the real (read: spiritual) meaning is revealed" (Cadwallader 2002:149). That is to say, that earth which has hosted generations of faith cannot just end up being looked down upon as worthless and without purpose. Cadwallader scorns at those who regard earth as an object. According to the Earth Bible project principles, the intrinsic worth of earth and mutual custodianship between humans and earth are not respected (Cadwallader 2002:149). That is to say, that earth which has hosted all generations of faith cannot just end up being looked down upon as a worthless and without purpose.

Other scholars assert that the text in Hebrews is a recount of the Jewish hope for restoration of Jerusalem and the Temple. According to Cadwallader, one such interpreter is Buchanan who argues that, the text might concern the Jews in the diaspora who would want to return to their Promised Land on earth (Cadwallader 2002:150). We wish to contend that whether earth in the text only serves as a transitory or permanent home for the faithful, its intrinsic worth and the role it played for the list of expectant men and women of faith cannot be ignored. Those who had faith cannot be ignored because they looked forward to be saved eventually, or to arrive at a better place prepared for them, earth too, for its part would be a better place for the faithful, when Christ who fills all in all brings everything on earth and in heaven under his authority, according to God's plan (Eph 1:9-10).

It is worth noting however, that earth in this regard still continues to be viewed as a second class entity and heaven as a better and final place for pilgrims. One understands that the text has a lot to do with the experience of Jews who were dispersed throughout the Near East and parts of Africa during Roman rule over their land. We still insist that it is land which is oppressed by the activities of power and production for economic value to finance imperialistic programmes. Those who are mentioned in the text as examples of pilgrims on earth represented the dispersed brothers and sisters in the Jewish Diaspora; and if Hebrews 11 is for believers in Christ, it also represents Christians who are regarded as pilgrims looking forward to a better place still to come. This is confirmed by the definition of faith by the writer in Heb11:1-2.

If Rehab who hosted the Jewish spies in Jericho is counted as one of those who were promised an inheritance, how much would the earth upon which Rehab hosted the Jewish spies benefit from the promise for a better condition from God? The inheritance value of earth, we contend, cannot be taken away from earth, even when it is treated as a transitory for pilgrims. In other words, earth plays as host to all human hosts, including Rehab, hence it is worth the hope before God.

We strongly assert that there can never be development of any country or industry without land or earth; no matter how much value humans attach to their economic and political development, and that the cause and place of land as the host for

human success cannot be ignored. The most valuable capital which humans use for their development is land. In this way land hosts humans, the fauna and flora and all that consists of biotic and abiotic among the Earth Community.

4.10. The lamentation for Earth in Revelation 12.

The book of Revelation, also known as the Apocalypse was written for the seven churches in Asia which are mentioned in chapters 2:1-3:22, and for other Christian believers everywhere. The language and style of writing point to the apostle John who mentions himself as having been incarcerated at the island of Patmos (1:1, 4, 9-10; 22:8). There are a number of common features in themes and language between John's gospel, the letters and the Apocalypse to John. The book addresses the seven churches with the message of perseverance; courage and assurance, that Christ who died, and lives forever had overcome all that believers were going through. If John received the Revelation while in prison for "preaching the word of God and for (his) testimony about Jesus" (Rv1:9), then the date of writing the Apocalypse should have been during the time of great persecution for Christians by the Roman Empire. Christians suffered persecution perpetuated by the Emperors of Rome, especially from about 62CE through to 70 CE. The composition of the book is mostly agreed by scholars to have been between 69 CE and 96CE (Howley 1979:1675).

4.10.1. Satan thrown down to Earth (Revelation 12:7-18).

Lamentation for earth comes as result of the defeat of the dragon that is thrown down to cause terror on earth. The account states that there was war in heaven between Satan with his angels and the archangel of the Lord, Michael who also had angels and the dragon, Satan and his angels lost the battle, and were thrown down to the earth. While there was shouting for joy in heaven, there was a lament for earth where the deceiver, the devil and Satan were thrown. "Therefore rejoice, o heavens, rejoice! But terror (woe) will come on the earth and the sea, for the devil has come down to you in great anger, knowing that he has little time" (Rv12:12) (NLT). We see

that earth is again an object of evil activity under the injustice of Satan and his spiritual followers. Heaven is cleared of the enemy, and earth has to bear the cost for a while before Satan is imprisoned or hauled away. Barbara Rossing stresses the word ‘woe’ which is used in the Revised Standard Version not to mean a curse, but a lament (Rossing 2002:181). She further indicates that the word ‘woe’ carries with it an explanation, connotation, rather than a curse.

While the lament was proclaimed at a time when the Roman Empire extremely tortured, persecuted and killed Christians under the influence of Satan, we read the passage from an ecological perspective and agree with Barbara Rossing who suggests “that the cry of Rv 12:12, ‘Alas’ (*ouai*) for earth; can be read as a cosmic cry for an earth free from Roman exploitation and domination” (Rossing 2002:191). The heavenly host’s exclamation in v12 is in fact a voice on behalf of the earth. The lament is still on and ecological crises, besides various types of exploitations of both nature and humans by fellow humans, is worth lamenting about. For how long shall earth lament and live under exploitation, particularly the non- human members of the Earth Community?

4.11. Conclusion

The above stated question and many similar have been raised as a point of departure for our theological framework and praxis for an ecological emancipation in Zambia, and the Copperbelt in particular. The Earth Community, particularly human beings have a role to play in the renewal of the Universe, Particularly the earth which is under siege in view of the promise in the Apocalypse that God will establish his rule on earth with Christ among his people on the throne (Rossing 2002.191). We cannot relegate the responsibility given to humans through the command to rule (Genesis 1:26 -28), to the powers of destruction represented by irresponsibility and injustice against those whose voices can hardly be heard, namely the Earth Community. The Copperbelt and Zambia in general is a case in point, and chapter five therefore serves as our theological framework.

CHAPTER FIVE

AN ECO-THEOLOGICAL FRAMEWORK FOR THE SUSTAINABILITY OF CREATION IN THE COPPERBELT

5.1. Introduction

In this chapter we shall endeavour to bring out the lessons learnt in the previous chapters, and theologically pose a closure to the argument. In the previous chapters we have explored the settings, the context of the mining industry on the Copperbelt of Zambia, and Kitwe in particular, their historical background in terms of early settlements; transitions in mining management and the effects thereof in terms of socio-ethical, environmental and economic impact.

The indigenous *Lamba* people's cultural cosmology and beliefs have been cited in brief over a number of aspects, such as marriage, their concept of life, death, God, natural resources and creation in general, and chapter two was devoted to this portion of the description.

In chapter three we spent some time exploring the copper mining industry, looking at the major copper processes, namely, underground mining, Open Pit or surface mining, the concentrator plant process, the smelter, the leach plant and of course the tailings dam, which is the disposal outlet of the affluent. The impact was assessed based on parameters prescribed by the Zambia Environmental Management Agency (ZEMA). National policies have been explored and analysed, to the extent of their effect on caring for the environment and nature in general. These include the Lands Act No. 29 of 1995, the Mines and Minerals Development Act No.7 of 2008 and the Zambia Environmental Management Act No. 12 of 2011. Weaknesses in implementation of the policies were noted.

Chapter four was an ecological hermeneutics perspective, giving an overview of Biblical evidence of the creator's concern for the creation to counter the biased view by some misconstrues of scripture which assert that the Judeo-Christian ethics is responsible for the ecological crisis faced by the globe. It is imperative to note that the dominium command in Genesis 1:26-28, which is purported to be the basis of abuse of natural resources by the faith communities, refers to agricultural

life and stewardship responsibility of humans. Genesis 2:15 makes it clearer, that the human being was put in the garden "...to till it and keep it" (RSV).

Throughout the books of the Law (Torah), God is seen to be giving out instructions on how humans should live as part of the rest of creation. The Jubilee and Sabbath Law in Leviticus 25 goes further by prescribing how God himself would liberate slaves and the land. Land was not to be sold perpetually because it belongs to God, and humans are just tenant farmers given to till it for their survival and not to over exploit anything on earth.

The second portion of the hermeneutics approach was devoted to prophetic writings citing Isaiah, Jeremiah, Ezekiel and Hosea. In Isaiah, the outstanding features were the worship song by the seraphim seen in Isaiah's vision when he was in the Temple attributing God's glory to fill the earth: "Holy, holy, holy is the Lord of Heaven's armies. The whole earth is filled with his glory!" (Isaiah 6:3). Margaret Barker, referring to the liturgical hymns of celebrating the Lord's Supper in churches wonders when she says "why did they associate the visible glory of the Lord in creation and the atonement effected by the death of the Lord" (Barker 2010:37). The rest of Isaiah cited in this work is devoted to the fury of God towards creation due to human wrong doing (Isaiah 24) and the restoration hope for creation in Isaiah 65.

Eco-justice from the perspective of the Wisdom literature has been explored with the use of the books of Psalms, Proverbs, Ecclesiastes, Wisdom, and Job. The relationship of God and his creation comes out clearly in the Wisdom literature. This is expressed by Deane-Drummond when she says that "...from the perspective of Job, it seems to make more sense to speak primarily of creaturely wisdom as being that which God discovers in creation, rather than that which is imposed by God." (Deane-Drummond 2008:95) The above assertion comes out clearly in the book of Job, the Psalms and Proverbs. Proverbs 6:6-9 compares the wisdom of an ant to that of a lazy human being.

The gospel's perspective of eco-justice starts with the synoptic gospels (Mathew, Mark and Luke) and ends with selected passages in John. In all the gospels what comes out clearly is the geography of Jesus ministry in the first century (CE), such as the Galilean valley, the fishing industry on Lake Galilee and the dry wilderness

around Jerusalem. It is within this geographical context where Jesus' reference to lilies, birds, animals and the weather in which creation becomes part of Jesus' great teaching. Jesus in the gospels, including John is the completion or fulfilment of creation. For John's Christology, the creation was incomplete until Jesus became part of it. This is testified in John 1:1-3, that "In the beginning was the Word. The Word was with God, and the Word was God. All things came into being through him..." (RSV). Jesus came down to complete that which was in the world from the creation of the cosmos. Jesus according to John is the light of the world and the living water for all humans and non-human creatures.

The book of the Acts of the Apostles, particularly chapter seven (7) depicts earth to be in need of redemption. The throne of God is above, and only revealed to the selected few as Stephan saw it at his death. Earth is disconnected from the divine throne. The account in Luke however counteracts the notion that earth has no value. The song of the heavenly host in Luke 2:14 to announce the birth of Christ confirms Luke's assertion in Acts 7:33. The epistles to Ephesians and Romans express the fact that creation is interconnected and Christ is the head in the creation of God.

5.2. The role of cultural mythologies in resolving the ecological crisis.

The starting point is that westernised Christian understanding of faith, God and culture neglects the role of African traditions and beliefs, with regard to creation; particularly in the most favoured (western) Christology. The quest for enculturation, which is "reformulation and reinterpretation of the gospel so that it can be at home in African culture" (Deane- Drummond 2011:128) cannot be avoided as we seek to locate the role of African myths and traditional beliefs in eco-theological justice. We strongly agree with Deane- Drummond when she says that "myths are developed in order to explain and answer questions about the meanings behind the historical events of the people's past, present and future. Myths are sacred narratives explaining how the world and human kind came to be in their present form and are therefore closely linked to religion." (Deane-Drummond and Bedford-Strohm 2011:132).

The *Lamba* people of the Copperbelt of Zambia believe that the earth is flat and God exists above the earth in the sky, and that it is God who gave them land, trees,

rivers, grass, animals, air and all that surrounds them. They further believe that one day God will come to take them with him. This belief about God, creation and humans should remind us of the misinterpreted passage of Genesis 1:26-30 with regard to the dominium command. If God left people in the Copperbelt and gave them all that surrounds them, then it follows that at his return they will have to account for what they did with each other and with the rest of creation. The myth plays the role of interpreting the Genesis creation story with an essence of stewardship, as indicated in Genesis 2:15, “the Lord God placed the man in the Garden of Eden to tend and watch over it” (New living translation). According to the *Lamba* myth, the creator watches over whatever is going on because God is just above everything. Just as *Lamba* people would be accountable to God for their dealings with the land and all that inhabits it, humanity is also accountable to the creator for the manner in which both human and non-human are treated, and the detrimental results thereof (ecological crisis).

5.2.1. The human and the non-human relationship.

In both the *Lamba* people’s traditional myth of creation and the Biblical account of creation, we see that humans are interrelated with the rest of the Earth Community. Humans cannot exist without the rest of the Earth Community which directly and indirectly contributes to the livelihood of human beings. It is therefore imperative to value nature and its components, because all that God created was very good. Pope Francis appropriately points out that “the loss of forests and woodlands entails the loss of species which may constitute extremely important resources in the future, not only for food but also for curing disease and other uses”(Francis 2015:23). The statement confirms our contention for sustainable use of the natural resources. The interdependence of the Earth Community is expressed further in Vaughan-Lee’s edited work of Satish Kumar who writes from the Hindu perspective of the trinity in soil, Soul and Society. Kumar says “soil comes first. It represents nature and sustains the entire world. Everything comes from the soil. Food which sustains life comes from soil...For the soil is a metaphor for the entire natural system” (Vaughan-Lee 2013:130). Although ecology of the soil is emphasised in the statement, we appreciate the basic dependence of physical beings on the soil, and so a home of the Earth Community has a foundation on which to start from.

Lynn white blames the advancement in science and technology by humans for spoiling and pollution of land when he says “The distribution of land was based no longer on the needs of a family but, rather, on the capacity of a power machine to till the earth. Man’s relation to the soil was profoundly changed. Formerly man had been part of nature; now he was the exploiter of nature.” (White 1996:188) Mining uses much of the machinery as we have pointed out already, in order to satisfy the ever increasing desire for minerals in industrialised countries.

One of the most dependable and interrelating members of the Earth Community is water. In his article on ‘baptism and the pollution of Africa’s water,’ De Klerk maintains that the words ‘water is life’ convey the importance of water on earth (De Klerk 2014:1). He further reiterates that “earth is the only planet in our solar system on which water occurs in liquid form...and, therefore, probably the only planet where life can develop and flourish” (De Klerk 2014:1). Water therefore is always in interaction with all non-human and human life. The activities of human beings such as mining if inappropriately carried out pollute water and cause changes in the balance of natural water. De Klerk agrees with our earlier assertion when he stresses how much mining industry can pollute water by saying “mining activities consume large amounts of water in processing the ores from the mines. In addition, mining also results in large amounts of chemicals, heavy metals, soil and other waste rock materials contaminating and polluting the water bodies” (De Klerk 2014:3). This is the case in the Copperbelt where even the methods of processing are not very modern from a technological point of view. De Klerk challenges those who have benefitted from water through baptism to have been “equipped to bring about change in water pollution” (De Klerk 2014:6). The point he is trying to put across to baptised Christians is that water baptism brings about assurance of our purification and salvation as a symbol of washing. Therefore a baptised Christian must be able to advocate for pollution free water bodies and preservation of it. By sustaining water, baptism is also sustained for future generations.

5.3. Scramble for land and its resources as new colonialism.

The late 19th century to mid-20th century was a period of conquests for new imperial territories, especially by European countries such as England, Spain, France, Portugal, German and Italy. The mining exploits which went with these territorial

explorations cannot be compared to Abraham's mission who was destined to be found of a nation in Genesis 12. Abraham was to become a blessing to others. To the contrary, the mining companies who came along with colonialists became a threat to indigenous inhabitants. The forced cheap labour enforced by mine owners in the Copperbelt of Zambia before independence, the damage caused to the landscape, pollution to rivers and streams, some of which have since dried up and the soil degradation to an extent that nothing grows there, has remained unmitigated by former mine owners and the colonial master, Britain in the case of Zambia. The case of an old lead and zinc mine in Kabwe, central Zambia where "...results indicated that soils over a substantial area were highly contaminated with median concentration of Pb [lead] in soils..." (Environmental Council of Zambia SOE 2008:47) has been a source of concern.

In the case of Abraham and his generations, land and its resources were used for their consumption and sustenance. However the use of land resources by the time of King Solomon became more exploitative. 2Kings 5-6 records the devastation caused by the need to construct the Temple. A lot of timber, stone and other mineral resources were used. Modern Zambia, and the Copperbelt in particular has suffered exploitation of resources for the commercial purpose to feed industry in the western world, and of course the finished products come back to Zambia and other third world countries with pollutant chemicals to further devalue the environment. An example of Greenhouse Gas emitting appliances which are dumped by their manufacturers without realising how damaging to life forms and the environment they are by consumers has been cited by many environmentalist and ecologist (www.eschooltoday.com/www.c2es.org).

5.4. Perpetual succession of land and Leviticus 25:23-34.

In the Old Testament, land could not be sold permanently, and we agree with Chung when he says the decree on the sabbatical year and the Jubilee year in Leviticus 25 "...provides a clear vision on economic and ecological reconciliation, social restoration and personal renewal." (Chung 2010:230). It is in the light of this decree that land cannot not be perpetually sold to foreign nationals for God said, "In the Jubilee year, the land must be returned to the original owners so they can return to their family land" (Lev. 25:28 b). In Zambia land is protected from illegal

possession and consequent abuse by either a Zambian or a foreigner because the Lands Act of 1995 provides that "...the President may alienate land to any Zambian. The President may alienate land to a non-Zambian...where the non-Zambian is a permanent resident in the Republic of Zambia..., is an investor...,a company...,a statutory corporation...,co-operative society...non-profit making charitable, religious, educational...organization or institution...registered in Zambia." (The Lands Act No.29 of 1995:271) The Jubilee year is the fiftieth ($50 = 1 + 7^{th}$) year since the last Jubilee. Land must also be left to rest (Sabbath for land) every seventh year so that it can continue to produce good and more crops and fruits. In the Old Testament however this was also an economic factor in terms of higher yields, and a social issue in terms of regulating society; Above all the land belonged to the Lord, for the Lord himself said, "The land must never be sold on a permanent basis, for the land belongs to me. You are only foreigners and tenant farmers working for me" (Lev. 25:23) (New Living Translation). The statement was relevant in the Old Testament, whereas modern countries have their regulations of land. The Zambian Land Act number 29 of 1995 states that, "All land in Zambia shall vest absolutely in the President and shall be held in perpetuity for and on behalf of the people of Zambia. The President may alienate land vested in him to any Zambian" (The Land Act No. 29; 1995:272).In the interest of Zambians, land may be leased for a period of time, but not exceeding ninety-nine (99) years though renewable.

5.4.1. The sabbatical year for the land.

According to Leviticus 25:1-7, land was to observe a Sabbath every seventh year of its use. However, it was a Sabbath to the Lord, meaning that the Lord was still the crown of creation. Sabbath means total rest, in this case for the land from any cultivation activities. The Sabbath for land was a reminder for humanity that God the creator was the crown of creation even when they had settled in a foreign land, we note the stress: "When you enter the land that I am giving you, the land shall observe a Sabbath for the Lord" (Leviticus 25:2)(RSV).

In Zambia, farm land can only rest when the owner or lease holder desires the rest, usually when production on such land reduces. The seventh year rest was meant, we assert to keep the promise between God and the people of Israel at that time.

The practice would not be economically and socially viable today. No farm owner can afford to leave land without cultivation for the whole year with workers on a pay roll. Moreover, the demand and supply contracts with consumers have to be sustained by the farmers. When productivity of land goes down, it calls for measures to sustain the yields. Crop rotation and other measures are taken to enhance production.

5.5. Environmental justice

Many voices today call for social justice, and we wish to add to such voices, the fact that there can never be social justice for humans without environmental justice or eco-justice. We are in total agreement with Chung when he says that “the biblical concept of eco-justice recognizes the need for healthy relationships in creation as a whole.” (Chung 2010:229). That is to say, the interdependence of humanity and the environment (other Earth Community members) is a must. The future of the entire creation stands in the balance without health and a sustainable relationship. However environmental justice, calls for concerted efforts by all stakeholders to address issues of ecological concern such as global warming, climate change, land degradation and many forms of pollution. The industrial West who have the means to mitigate the effects of their environmentally dangerous activities have the responsibility to assist the poor third world countries who have no capacity to handle such effects.

The law of love your neighbour as yourself must be practised, even in the wake of ecological environmental justice. We are talking about fair treatment of each other between those who contribute much and those who contribute little to ecological crisis and environmental degradation. “The world’s poorest countries account for just **0.4%** of CO₂ emissions. The G8 countries alone produce **45%** of the world’s CO₂. ”(Turner 2009:19). There can never be environmental justice, we contend, when the poorest and least contributors to the problem are the worst affected. This is one disadvantage of the global village and the sharing of the planet.

5.6. The co-operate social responsibility of multinational corporations.

The issues surrounding responsibility of multinational corporations, particularly in mining towns has been discussed in chapter three. Policies with regard to environmental assessment reports presentations and the procedures which are involved have been clearly spelt out. The problem we have discovered, particularly for the Zambian context is lack of integrity on the part of investors, or multinational mine owners on the one hand; and lack of capacity, and irresponsibility on the part of government officials responsible for implementing policies on the other hand. The integrity of the environment is sacrificed for the sake of multinationals' profits, particularly in developing countries like Zambia.

Unsustainable wages are another concern surrounding the multinationals. An example of Chinese companies in Zambia, and the mining industry cannot be avoided. The labour laws and policies in Zambia have set a standard in terms of equal pay for equal work. A domestic worker has to get not less than Zambian Kwacha **520.00** (US \$ **82.00**) per month excluding transport and other allowances (Ministry of Labour 2012). An industrial labourer is supposed to earn more than Zambian Kwacha **1, 500.00** (about US \$ **234.00**) per month. These prescribed figures are not complied with by most of the so called investors and citizens alike. There must be physical inspections of the pay-rolls for each company in order to enforce the law. However, the social irresponsibility starts with the government itself, being the largest employer in Zambia. The above proposed figures cannot sustain families because the monthly cost of food basket for a family of five is about Zambian Kwacha **3,793.59** (US \$ **379.35**) (www.jctr.org.zm Jan, 2015). Much is left undesired for the integrity of nature and creation in general if workers cannot make ends meet. The practices such as charcoal burning, illegal stone quarrying, illegal methods of fishing, and many other vices which are promoted by poverty become the order of the day as people struggle to survive.

We call for all stakeholders: those in governance, civil society, the church, investors, scientists and traditional leaders in Zambia, and on the Copperbelt in particular to scale up all efforts in uplifting the living standards of workers and paying them living wages. Once this is achieved, then sensitisation on the importance of environmental care shall yield positive results.

5.7. Governance and sustainable use of natural resources

Copper mining is unsustainable because copper itself is a finishing product. The rock cut from surface or underground in form of ore does not grow back to its form, once dug out leaving a pit, that's it. The picture of unsustainable industry of copper mining, as cited in chapter three cannot be an excuse for poor management of natural resources on the Copperbelt of Zambia. Depleted trees, grass, polluted water sources and soils all need to be regenerated in order to sustain biodiversity in and around mining towns. The leaders (civic) must recognise care for the environment as a religious responsibility, realising that scripture indicates that rulers are put in place by the will of God (Romans 13:1), and that the citizens must be obedient to [God fearing] rulers (Titus 3:1). God cannot allow disobedient agents to take office, especially when care for all creation is neglected.

5.7.1 Sustainable methods in the use of resources.

By sustainability here, we imply the use of resources which gives chance or rest to the resource for growth, reproduction, availability for future use and are environmentally friendly. If the Earth Community is to be sustained, then all resources have to be used sustainably. Sustainability for future use and provision of habitat for species is what we advocate for in this case.

The use of biogas, solar energy and wind mills in place of firewood, charcoal, hydro energy and other unsustainable sources of energy has to be encouraged and facilitated. Biogas can be obtained from animal dung which is properly directed from the kraal to a septic tank where it ferments to produce concentrated gas for lighting, cooking and other domestic use. The Northern Diocese of the Lutheran Evangelical Church in Tanzania is a good example of how the church can participate in mitigating ecological crisis (United Church of Zambia Diaconal visit, August 2012). They have a project where biogas is used exactly in the way we have described it above. Hydro energy is expensive in Zambia, and less than 40% can afford the tariffs. The biogas, therefore can sustain rural and urban communities of the Copperbelt and Zambia in general, while tree cutting for charcoal can also be reduced drastically. Further, water levels on rivers and reservations for hydro-power generation have become a source of worry. Load shedding has become the order of the day. Zambia and the Copperbelt in

particular, experiences immense sun shine which is good for maximum usage of solar energy. The government is called upon to bring in investors to facilitate the use of solar energy by way of supplying equipment and technology. The source is not only sustainable, but it is also cheaper for most Zambians, and particularly unemployed residents of the Copperbelt, where the few surviving mines employ few people compared to the past when the government run mines employed almost every householder in the mining townships.

5.8. The role of the church in the face of ecological crisis.

We wish to take some time to explore what the church is all about, according to Avery Dulles. That is to say that for us to understand the ethos of the church, the models of the church as drawn out by Dulles must be explored from an eco-justice perspective.

5.8.1. The church as an institution with an ecological concern.

The model of the church referred to under this sub-theme illustrates the fact that the church is visible, just as Dulles says “the notion of the church as society by its very nature finds to highlight the structure of the government as formal element in the society, the view that defines the church primarily in terms of its visible structure, especially the rights and powers of its officers” (Dulles 200:26). The structural nature of the church therefore gives it an opportunity to make decisions on ecological issues and be able to interact, as it were, with civic leaders at various levels. Being an institution which operates within rules, such that ecologically constructed rules can help members of the church to realise its role. The church with its officers placed in various departments to oversee activities and implement decisions on spiritual, social, (educational and health) and ecological issues we assert, would be the right organisation to reach out to communities with a message of sensitisation on care for other members of the Earth Community. The message of the church should be holistic, just as the issues of Ecology are holistic in quality (Deane-Drummond 2011:26). Further, the great commission of the first apostles in Mathew 28:16-20 emphasised to go and teach those to become disciples to observe all that Christ had taught them.

The church indeed has to reorganise itself in all aspects of its functions such as evangelism, pastoral, worship, catechism, leadership training, society education and many others, towards resolving ecological crises. The church has to work with other religious groups such as the Hindus, Moslems, Jews and other world religions.

However, investment and training of personnel who would impact communities positively with ecological messages is important if the church can discharge its functions in this area, as an institution.

5.8.2. The church as a mystical communion with ecological concern.

This is the model by which Dulles defines the church on one hand as “a fellowship of persons-a fellowship of men with God and with one another in Christ. On the other hand the church is also the totality of the means by which this fellowship is produced and maintained” (Dulles 2002:41).

While the institutionalised model of the church is so visible that officers take up their roles according to rules and procedures, this model illustrates the church as a primary group in which individuals mystically associate with intimacy. The model would help the church face ecological issues without the problem of hierarchy barriers. A bishop for instance, would interact with members of a local Congregation – be it in an episcopal set up or Presbyterian context; and reason with them on how best to participate in issues affecting the planet earth. The face to face interactions according to Dulles, allows individuals in a fellowship to be so mystical that the bond is only attributed to God through Christ. Issues of eco-justice require such a bond and fellowship of believers, who have one accord, and after the manner of the early church of Acts of the Apostles in chapters one and two to four (Acts2-4).

In the quest for effective ecclesiology towards resolving ecological crisis, the model of the church in which individual members have close association brings to the fore the planetary concern more vividly.

5.8.3. The church as a physical presence of God from an ecological point of view.

The physical presence of the church is understood to be an outward sign of God's grace for people; it is an outward expression of God's saving grace for the chosen or called out people. Quoting Henri de Lubac, Dulles argues that, "...if Christ is the sacrament of God, the church is for us the sacrament of Christ; she represents him, in the full and ancient meaning of the term... Essentially the church is the historically continuing presence in the world of incarnated Word of God" (Dulles 200:56, 62). We have noted above that God's wisdom is found in his creation, and it is appropriate here to indicate that the church as a physical presence of Christ should be able to identify itself with the wisdom which is seen and abiding in nature, particularly the non-human creatures. The church from the sacramental perspective has to identify with the wisdom of God in nature and advocate for its conservation and sustenance wherever it is threatened.

Ephesians 4:1-6 testifies that Christ is the head of the church which is also his body (compare 1Corinthians 12:3-11); thus Christ is the completion of creation. Creation without Christ is incomplete. When we refer to creation, it is not just humanity but both the living, the non-living, the fauna and the flora, the invisible and the vividly seen. We agree with Sally McFague who points to nature as the body of God (McFague 1993: vii). The church as a physical presence of God in Christ has the duty to reveal and appreciate the sanctity of nature and creation in general. The liturgical components of worship in the church must incorporate ecological issues. Hymns and sermons on nature can be constructed and composed.

5.8.4. The servant hood of the church in ecology.

One of the models of the church outlined by Cardinal Dulles is that of servant hood, anchored on the fact that "Christ came into the world not to be served but to serve, so the church, carrying on the mission of Christ, seeks to serve the world by fostering the brotherhood of all men" (Dulles 2002:84). Of course Cardinal Dulles is concerned with ecclesiological functions of the models of the church. We wish to assert that the servant hood of the church does not end with men, but is extended to all creation. Humans are the servants on behalf of the creator over creation. The human being is a "Created Co-Creator" as Phillip Hefner puts it (Hefner 2001

Vol.28). The above notion agrees with the dominium command in Genesis 1:26-28 and Genesis 2:15, especially the later in which humans were to cultivate or till the garden and keep it. More value should be added to God's creation, the garden. Sky scrapers, industrial fumes, carbon emissions, and the like have all been practices by which humans have abrogated their servant hood, particularly through the church. The church as a servant has a duty to avert an ecological crisis. We wish to spell out here that the church has to exercise servant hood in the era of ecological crisis. Advocacy for correct policies to protect nature is one of such ways the church can use in its servant hood.

5.8.5. The church and the proclamation of the Good News in ecological crisis.

We strongly agree with Dulles when he says that "The mission of the church is to proclaim that which it has heard, believed and been commissioned to proclaim." (Dulles 2002:68). In this model Cardinal Dulles refers to the church as being the "Herald" or the announcer and proclaimer of the Good News.

Today to proclaim the Good News without awareness about the needs of a holistic creation is an incomplete ministry by the church. We reiterate the importance of training personnel and introducing eco-Theology modules in seminars and theological colleges for the church to be equipped in proclaiming the Good News on the survival of creation, thus sustain nature. Study guides such as one by the Catholic Church in Zambia on "caring for our environment" (Jesuit Centre for Theological Reflection 2007) need to be scaled up even from an ecumenical point of view.

Under the auspices of the World Council of Churches, efforts have been made such as the "We Have Faith-advocacy and Campaign" in training for church leaders in order to mitigate the effects of climate change (Chinoko, 29th 2014, Maputo).

The objectives of the "We Have Faith" (WHF) and "Action by Churches Together" (ACT) as outlined at the Maputo training of church leaders were as follows (Chinoko, 29th Oct. 2014):

- To strengthen and mobilise faith communities around climate Justice and sustainability.

- To elevate the unified voice of faith communities to national and international platforms.
- To bring the language of spirituality, morality and ethics to the sustainable development and green economy discourse.
- To raise awareness, provide educational support and motivate action from local people of faith on issues of climate and sustainability.

However, little or no effort is made to send down the message to local communities in churches where the actual harm is done to creation. Workshops come and go; resources are used up year in year out; with no tangible results.

Some reasons behind this are a lack of consistence in the way the Good News to save nature should permeate to the grassroots of communities.

Other reasons include the fact that more attention is paid to climate change and resources such as money being mainstreamed into agricultural activities to avert hunger due to climate change; health to avert diseases such as malaria and diarrhoea due to floods. Climate change money will always come within a context of either research to save a particular sector; or be directed into an educational or poverty alleviation project. Climate change is partially a result of poor management of God's creation by humans; besides the "*El Niño* and *La Niña* climate cycles, which can influence weather patterns across the globe" (www.en.m.wikipedia.org, 1997). The above cited reasons cannot help the church as the proclaimers to take the message to care for creation to the common people who need it. The church could act as a vehicle for organisations and conferences on climate change such as Conference of Parties (COP), and United Nations Framework Convention on Climate change (UNFCC). More funding is needed for church based programmes such as Southern African Faith communities Environment Institution (SAFEI), Action by Churches Together (ACT) and Fellowship of Churches in Southern Africa (FOCSA), to carry out educational programmes in their member denominations and communities. When resources are committed to the proclamation of the Word on caring for creation, particularly in the third world, and of course the main and worst culprits the western industrialised communities, it will result in a reverse of the trend of loss of species and pollution.

Establishment of eco-Congregations has been an attempt by some communities, and these efforts need to be adopted in Zambia and the Copperbelt in particular for advocacy and education purposes for Christians and the communities where the church exists. In practice, the church can carry out projects such as tree planting to mitigate the effects of climate change, land degradation and other results of abuse to nature.

Pope Francis in his 2015 encyclical letter on care for our common home refers to earth as sister and mother(imitating Francis of Assisi) when he says; “Praise be to you, my Lord through our sister, mother Earth, who sustains and governs us, and who produces various fruit with coloured flowers and herbs” (Francis 2015:7). In praise of God Pope Francis reflects on the value of nature and the reasons for sustaining the earth. The mother’s care is adequate illustration for human dependence on nature and that we have to live side by side with the Earth Community like our sister. The message is not for the Roman Catholic communities only, but it is for all faith and non-faith communities of the world.

5.8.6. Lessons from the Accra Confession.

The Accra Confession is the declaration made by member churches of the former World Alliance of Reformed Churches (WARC), currently known as the World Communion of Reformed Churches (WCRC) and consists of 214 churches in 107 countries, with its membership drawn from Congregational, Presbyterians, Reformed and United churches, mainly with roots in the 16th century reformation led by John Calvin, John Knox and others (Accra Confession 2004:2), with its headquarters in Hannover, Germany. The Confession was declared at the ecumenical organisation’s 24th general council in Accra, Ghana in 2004. “It is based on the theological conviction that the economic and environmental injustices of today’s global economy require the Reformed family to respond as a matter of faith in the gospel of Jesus Christ” (Accra Confession 2004:1). It is a calling upon Reformed Christians from all over the world to “engage injustices in the world as an integral part of their churches’ witness and mission” (Accra Confession 2004:1).

It is vital to appreciate the principles of the Confession by the church because the church itself requires consistency and unity in its fight against injustice. We strongly agree with the Confession’s reasons why the church needs to learn from it and

apply its principles. The following reasons for the church to apply the Accra Confession states that: 1. “Justice is a matter of faith. Matters of economic and environmental justice are not only social, political and moral issues. They are integral to faith in Jesus Christ and affect the integrity of the church” (Accra Confession 2004:1). That is to say no meaningful proclamation of the gospel by believers in Jesus Christ and their churches can be claimed without paying particular attention to issues of global injustice that go along with the use of natural resources, labour, marketing, trade and investment. The church has to realise that the much oppressed masses it preaches the gospel to be the same populations who need to survive economically and they depend on the natural resources around them. Moreover, there can never be any economy to talk about when nature and the environment have nothing to offer in terms of economics, health and survival of the inhabitants. The church is no exception in a quest for survival. 2. The Confession further states that “The unity of the church is critical. Unity is concerned with togetherness however, divisive the issues confronting the confessing body maybe” (Accra Confession 2004:1). Christ demanded unity among His followers, to that effect the church must hold on to unity for it to advocate for justice in the areas of economy and ecological issues with one prophetic voice. Issues of global justice cut across denominational boundaries in effect and hence the need by the church to be united, particularly in the third world countries like Zambia.

3. The third reason why the church needs the Confession is that “the church stands in solidarity with persons who are suffering and struggling...it calls the churches and society to hear the cries of the people who suffer and the woundedness of creation itself, over-consumed and under-valued by the current global economy” (Accra Confession 2004:1). The church is called to speak out for the oppressed, marginalised and look through the eyes of the powerless as a mandate given by Christ. In this case, nature is powerless for as long as it remains the base of resources which humans use with impunity.

The ecumenical movement in Zambia through the mother church bodies of the Council of Churches in Zambia (CCZ), the Evangelical Fellowship of Zambia (EFZ) and the Zambia Episcopal Conference (ZEC) have a responsibility to speak against the economic and environmental injustice being perpetuated by mine operators

such as the Chinese and Mopani Copper Mines (MCM) (owned by Glencore of Switzerland) on the Copperbelt. The economic injustice on the part of mining companies was reported by the media in the United Kingdom and Zambia that "...a special investigation into the company Glencore's subsidiary, Mopani, located in Zambia, sells its copper at artificially low prices to its parent company in Switzerland. The copper can then be sold on by Glencore from Switzerland, where it not only realises a higher price, but where Glencore also pays lower taxes..." (www.dailymail.co.uk 4th May, 2011) The report further alleged that "the emission of sulphur at the Mopani mines is 70 times higher than the maximum healthy limit set by World Health Organisation (WHO). Locals suffer toxic rains and respiration problems." (www.dailymail.co.uk 2011)

The above cited examples of how much damage the mines in Zambia have caused to human and no-human life justifies our assertion that advocacy alone is not enough, and that the ecumenical bodies have to go as far as engaging government and decision makers before mining projects are implemented. Evaluations of effects of mining projects currently running have to be conducted. To carry out this exercise of evaluation, the church has to train personnel in law and environmental issues.

Efforts by the Council of Churches in Zambia (CCZ) the Evangelical Fellowship in Zambia (EFZ) in the area of advocacy among mining townships on the Copperbelt of Zambia by sensitising citizens and carrying out baseline studies for advocacy have to be scaled up by working with Non-Governmental Organisations (NGOs), traditional leaders and residents in order to engage the government on one hand and the investors on the other hand. One baseline study was carried out by the Council of Churches in Zambia in 2009, and the purpose was to "identify Religious Leaders who have already started working on the socio-economic issues...lobby and act as catalyst for awareness creation and capacity building among the Religious Leaders...establish a network of Religious Leaders who will create an enabling environment and voice platforms for their church members...mobilize for national and international advocacy..." (Matale 2009:1-2) However, we believe much more can be done to provide an enabling environment for the affected as indicated above. We recommend concerted efforts and resource mobilisation in

order to speak for the affected and the marginalised silent earth and the inhabitants.

The Accra Confession literates that which we have cited in chapter four with regard to the groaning creation according to Romans 8:22. Thus it says "...we are challenged by the cries of the people who suffer and by the woundedness of creation itself. We see a dramatic convergence between the suffering of the people and the damage done to the rest of creation" (Accra Confession 2004:2). This is also referred to as "reading the signs of the times" (Accra Confession 2004:2). The Confession confirms that "...the unlimited economic growth for industrialised countries, the tendency of over consumption... and the drive for profit of transnational corporations have plundered the earth and severely damaged the environment" (Accra Confession 2004:3). This is true of the situation around the mining towns of the Copperbelt in Zambia

In the light of the above cited statement in the Confession, we agree with Pope Francis when he refers to the earth by saying that "we have come to see ourselves as her lords and masters, entitled to plunder her at will...this is why the earth herself burdened and laid waste, is among the most abandoned and maltreated of our poor; she groans in travail" (Francis 2015:7). Human life and sustenance of other creatures are not the priority on the agenda of the mining companies and the state authorities who are only concerned with employment of Zambians, regardless of their poor working conditions, the church indeed should speak for creation and take up its role to educate humanity.

5.8.7. Confession of faith in ecological crisis.

Faith is confessed by religious individuals, families, groups of people and churches depending on their interpretation of scripture in a given context. With this notion in mind, the Accra Confession at one point states that "we believe in God, creator and sustainer of all life, who calls us as [co-creators] in the creation and redemption of the world. We live under the promise that Jesus Christ came so that all might have life in fullness. (John 10:10)" (Accra Confession 2004:4). That is to say life cannot be lived in full without the existence of the rest of creation besides humans. After all humanity depends on other creatures for survival, and God is sovereign over all creation. "The earth is the Lord's and the fullness there of" (Ps 24:1). Churches

have to confess for neglecting their ministry responsibility of speaking for nature and other species. Inspired by Phillip Hefner's 'Created Co-Creator' assertion, Francis Kadaplackal contends that "the term 'co-creator' refers to the freedom of the human being, which is a foundational and fundamental condition of existence... 'humans cannot avoid the freedom to make the choice, and only humans can construct the stories that justify such stories... environmental policies require a myriad of value judgements concerning the comparative values of earth and of humans and other forms of life'" (Kadaplackal 2015:1). That is to say, therefore that human beings through the church have a moral duty and a creative responsibility to speak for nature and all that constitutes the creation.

The question of covenanting the Zambian Reformed churches through the mother-bodies or individual denominations has to be pursued. If Zambia is a Christian country as declared in the Republican Constitution (Republic of Zambia Constitution of 1996:7), then Christians have to take it upon themselves to obey God's call for responsibility over his creation. The command to reign over the earth (Genesis 1:28) and to till and tend the garden (Genesis 2:15) does not point to depletion of species, but to sustain them for future generations, and to add value to God's creation, which he himself declared as very good at the completion of creation. Moltmann makes our point clearer when he maintains that "...this life has to be differently defined on its different levels. On the legal and political level, we have to see it as a 'covenant with nature', in which the rights of human beings and the rights of the earth are respected and balanced out. Nature must no longer be viewed as 'unclaimed property'" (Moltmann 1993:3). The faith communities therefore have to abide by the covenants they are bound to by living as part of creation by respecting the rights of nature to the extent of speaking for creation.

The Confession refers to the creation as a household of God (Accra Confession 2004:5), which indeed is the correct way of regarding the Earth Community, if God's wisdom is to be appreciated in nature. The main line churches and Orthodox Christians in Zambia will find the teaching on eco-justice easy and straight forward to adopt. The Charismatic's and Pentecostal movements, who are mostly autonomous units of gatherings depending on their founders, have a problem of literal interpretation of scripture which they usually spiritualise at all cost. That is to say, Pentecostal movements usually think of life and creation in general in the

heavenly aspect. We agree with Moltmann when he says that “the revision of the doctrine of creation which is, in my view, necessary today...is a changeover to an eschatological understanding of creation...” (Moltmann 2007:116). The attitude of looking at creation as an ageing and finishing resource does not help in caring for nature, but it is the attitude of ever condemning the fall and hoping for redemption as the only aspect of renewal. The Confession however urges all confessing Christians and churches to begin “to engage in (the) process, including taking actions and we urge them to engage further, through education, confession and action”(Accra Confession 2004:4).

The integrity of creation is at stake, and the mining industry is one such activity which disrupts this integrity. If left unchecked, the Accra Confession in Zambia will continue to remain on paper without impact. Confession of sin leads to repentance; and the Reformed churches in Zambia ought to lead individual members in confessing the sin of misusing creation, being “captivated by the culture of consumerism and competitive greed....,” (Accra Confession 2004:5). Such repentance results in the praise of God the creator and all his creation. The state machinery, we contend, has to be engaged on the route to change of attitude towards nature, and the means has to be proposed by the faith community, the church in conjunction with other faiths. However, we wish to note that it is not so much a confession that is needed, but rather a renewed discussion among all concerned on the best ways to achieve more justice; and agree with the notion that the “confession was not intended to be adopted by member churches. Instead, it was (and still is) meant to be a prophetic call to the churches, one which they were invited to engage with and in” (Meehan 2014) at www.crcna.org). The Confession was an admission of what is lacking, and recognition of the need to discharge justice in favour of nature.

5.8.8 The practical action by the church in resolving ecological crisis.

The church has an opportunity in reaching out to most people, particularly in Zambia because its membership cuts across all divides such as age, political affiliation, economic and social status of people; tribe and race. The church has to include in its liturgy, the recognition of nature. Chung says “the church’s liturgy should link appreciation of nature to explicit concern and care for nature. With this

shift, preaching of the Word, administration of the sacraments, and hymns and prayers of the Congregations can become more pertinent to the alleviation of the eco-justice crisis and environmental degradation" (Chung 2010:217). It is from such a background that we strongly urge the churches in Zambia to adopt songs, hymns and illustrations from folk tales which stress the importance of nature. This has been done before by the Christian believers from other generations, an example of the Russian hymn translated into English by Stuart K. Hine in 1953 is such a good reminder of recognition of nature: " O Lord my God! When I in awesome wonder consider all the works hath thy made, I see the stars; I hear the mighty thunder, thy power throughout the universe displayed....." (Horrobin and Leavers 1990:506)

The indigenous languages have adequate expressions by which Africans would sing in appreciation of creation. In fact Africans celebrate life (Mbiti 1975:126) and if nature is part of this life, then composition of hymns and songs about nature must be encouraged. Troy Messenger argues that "When we worship in spirit and truth—but not in earth-centred bodies—we deny a fundamental relationship we have as earth creatures at home in this world" (Messenger 2001:174). The need to formulate a liturgy which incorporates earth is a requirement by the church today, and that "liturgies must reclaim the resources of earth as the tools of worship if we are to rebuild our relationship with God, each other, and the environment" (Messenger 2001:175). The earth resources include wood, stone, grass, water, wild cereal and much more, which are not alien to an African church, let alone the Zambian worshippers. The convenience to use modern key boards and other electrical musical instruments tend to defeat the use of earth elements in worship by many churches, particularly in the cities.

Bible study on selected passages, such as provided in the Green Bible Project and those cited in chapter four would provide a basis for discussion in small groups. Again folk tales on the creation and creator would help the rural communities to move from the known to the unknown, in terms of understanding creation from the Biblical point of view. The *Lamba* creation myth of God (*Lesa*) who came from the east planting trees, making rivers, hills, giving tribes their settlements and promising to come back some day can be used by the church in supporting and contextualising the creation accounts of Genesis 1 and 2.

The church as a family of God and the chosen by God, has a responsibility indeed, of taking the message to care for creation to all, particularly the Zambian communities and the government of the day. Investors who come to Zambia should find established principles and global justice on which they should base their investments without losing sight of the integrity of creation, particularly the non-human members of the Earth Community. The World Council of Churches (WCC) committee on public issues observed in 2009 that “the earth and all its inhabitants are currently facing an unprecedented ecological crisis, bringing us to the brink of mass suffering and destruction for many. The crisis is human-induced...Churches have been complicit in this history through their own consumption patterns and through perpetuating a theology of human rule over the earth” (www.oikoumene.org 2009). That is to say, the church has a role to bring about change in the mind set of communities and governments in order to reverse the ecological trend from worsening to a status of recovery.

The United Church of Zambia, the largest Protestant entity in Zambia has embarked on a pilot project with the United Nations through the Global Environmental Facility (GEF) and Small Grant Programme (SGP) by empowering small scale farmers through implementing the environmental conservation project.

The primary objective of the project is “...to support subsistence/ small scale farmers in Petauke district of the Eastern Province of Zambia in the transition from conventional agricultural practices with external input to ecological and economical agricultural production through alternative farming methods and land management for self-sustainability, raised levels of food security and income and thereby contributing to the protection and regeneration of the environment for future generations.” (Kabonde 2014:3) This in our view is a good follow up to the Accra Confession by a faith community, and similar projects should be extended to the copper mines in the Copperbelt.

5.9. Citizens and the ecological crisis

The call to an ordinary Zambian to be mindful of their practices in agriculture, fishing, game hunting and small scale mining, such as quarrying should be loud and clear. We have concerns over the use of mosquito nets for fishing in some places, including in rivers of the Copperbelt. These are nets provided by the

ministry of health to curb malaria, which is spread by female mosquitoes. The practice ends up depleting fish species in lakes and fresh water rivers because even the smallest fingerlings are taken for profits and consumption. A situation has been reported by our informant, Rhoida Chola (03rd August, 2015) that fish species in Lulimala and Lukulu Rivers of Mpika district in the north east of the Copperbelt are dying from what is explained by fisheries officers as contamination of water from pre-treated mosquito nets which the local people use to catch fish. The situation is worsened by fast drying water due to inadequate rainfall in 2014/2015 rain season.

The use of pesticides, chemical weed killers and continued clearing of portions of land result in pollution of the soil, water sources, soil erosion and removal of habitat for biodiversity. The Zambia Environmental Outlook Report for 2008 indicated that “agriculture also relies heavily on chemicals to control disease, pests, and weeds, in addition to enhancing soil nutrient levels. The toxicity level of a particular pesticide depends on several factors such as its residual effect on the environment and quantity used.” (Zambia Environmental Outlook report of 2008:47) The church in conjunction with the state and the civil society are responsible for “preaching” the message of care by educating the citizens about the dangers of the practices cited above, and the benefits of regulating the use of chemicals in any particular area.

5.10. The Zambian government and eco-justice.

It is believed that most policies in Zambia are already in place. We have cited the Mines and Minerals Development Act No. 7 of 2008, the Environmental Management Act of 2011 and the Lands Act No.29 of 1995. They constitute very good policies in as far as guarding the environment and sustaining creation is concerned. The implementation of such policies is yet a serious problem the Zambian government is faced with.

The Lands Act No. 29 of 1995 serves “...to provide for the continuation of leaseholds and leasehold tenure; to provide for the continued vesting of land in the President and alienation of land by the President; to provide for the statutory recognition and continuation of customary tenure; to establish a Land Development Fund...” (The Lands Act No.29 of 1995:1) The Act is used in reference to related Acts such as the Forest Act No. 7 of 1999 and the Water Resources Act No.21 of

2011 to regulate alienation of land, the use of water bodies and trees in the country. The details of these laws provide procedures and rights for both the resources and the users. The Land Act was cited in chapter three and we confirm that it adequately caters for the purpose, although amendments to it can be carried out as need may arise from time to time.

The Mines and Minerals Development Act No.7 of 2008 is a law which regulates “...the prospecting for, mining and processing of minerals...” (Mines and Minerals Act No.7 of 2008:63). Any work to be carried out with regard to mining; from prospecting to processing is regulated by this Act. The conservation and safety measures for biodiversity in the mining areas and for workers are provided for by the law. During prospecting for minerals, the Act stipulates that “a holder of a prospecting licence shall...remove within sixty days of the expiry or termination of the prospecting licence, any camp, temporary buildings or machinery installed and repair or otherwise make good any damage to the surface of the ground...keep and preserve such records...relating to the protection of the environment” (The Mines and Minerals Development Act No. 7 of 2008:74-75). It further demands that the mining licence holder shall “...stack or dump any mineral or waste products in accordance with the environmental management plan” (The Mines and Minerals Development Act No. 7 of 2008:82). We strongly contend that if law is appropriately applied and enforced, mining in Zambia would not be as damaging as it is today.

The Environmental Management Act No.12 of 20011 provides “...for integrated environmental management and the protection and conservation of the environment and sustainable management and use of natural resources.” Although the statement sounds anthropocentric, the purpose of conservation and sustainability is enshrined in the law. The Act further states that “every person has a duty to safeguard and enhance the environment...the environment is the common heritage of present and future generations” (The Environment Management Act No. 12 of 2011:93, 102). The law regulates the management of biodiversity and all that surround human beings in Zambia, and the Copperbelt in particular. There is adequate legislation for ordinary citizens and foreign investors alike.

However, we contend that low levels of literacy have contributed to the problem of loss of biodiversity, depletion of species and land degradation. Literacy in this case is defined as an ability to read or speak English, which is the official language. Education should have been declared compulsory and absolutely free at primary and basic levels. This would have allowed more people, say in the next 20 to 30 years to be literate Zambians who would have attained adulthood. The policy of free education up to grade seven is merely on paper because; (i) there are a lot of privately run schools which are meant to generate income for the proprietors. (ii) Poor funding of government schools compels school administrators to charge amounts of money towards maintenance and the building extension projects. Many rural and a good number of urban children drop out of school because their parents and guardians cannot afford to pay the fees. The Zambia Central Statistics 2010 report confirms that "...the major reason for leaving school among persons who had attended school was lack of financial support...the national total was at 36% for both females and males" (Zambia Central Statistics Gender report of 2010:7). The literacy rates for adults of 15 years and older were 66% in 1990 and 76.6% in 2000 (Zambia Central Statistics Gender report of 2010:6). We suggest that there must be a deliberate political will to provide free education to Zambian children at basic level, and encourage adults to be literate so that the policies of governance such as those concerned with the care for the environment can be communicated to the masses even through printed materials. Television and radio communication can cover a smaller constituency of those living along the line of rail. Moreover transmission of educative information on radio and television is expensive. It requires sponsorship. We maintain that literacy empowers communities with the ability to understand their environment in order to conserve it.

The Zambian government is called upon to be consistent on matters of national development and the environment. Party cadres; that is to say, people who group themselves around a political party especially the one in power to destabilise communities should not be tolerated by any sitting Presidency and government. These groups have gone as far as allocating land to unsuspecting citizens. When land is allocated by cadres, we don't expect sanity of plans for services such as roads, water, recreation facilities, drainages and no consideration is given to the requirements of the environment in terms of what type of buildings can be put up in

a given location. The environmental impact in the Copperbelt where explosives and heavy machinery is used in mines is worsened. Unplanned settlements end up conflicting with the environmental requirements, because non-standardised buildings break up, causing blockages to water ways and even loss of human life and property. Floods come as a result and eventually disease takes its toll on people.

The attitude of both Zambian citizens and those in government has to change for responsibility purposes. After all, each government is allowed by God to be in office according to Romans 13:1-7. But those in authority must carry out their duties with sanity to inspire obedience and respect from the citizens.

Most importantly, the fact that the Zambian Constitution declares the country a Christian country and nation brings about an immense responsibility. Scripture teaches us that one will be measured with its own yardstick and this principle of the Constitution makes the argument of this thesis and the critique against government appropriate and serious.

5.11. Conclusion

We wish to place emphasis on the role of African cultural mythologies in appreciating creation; in as far as the human and non-human relationship is concerned. The wisdom of God is vividly seen and felt in God's creation, hence the reason why no other creature should abuse, deplete or violate nature. Multinational and transnational corporations should be made to understand the policies guarding the use of natural resources. In fact the investors come from countries where they have care and concern for the environment; an unlimited appetite to maximise profits is no guarantee to deplete the species in other countries and continents. We know that some countries like China have been stockpiling raw materials from African countries and Zambia's mineral resources and timber are no exception. (www.telegraph.co.uk 2012) (www.blog.cifor.org 2014).

The sabbatical year for land is a serious Biblical and ethical concept which requires it to be implemented; especially in agricultural activities. However mining activities may not give the chance to underground land to rest. Mines have a life span, and

workers in these mines expect to be paid only when and depending on what they put in, in terms of labour.

We call for concerted efforts between the policy makers (government), the church, civil society and all well-meaning Zambians including traditional leaders to rise to the environmental challenge of our time. The signs are clearly seen by all in terms of what land can produce, disease, effects of climate change and natural calamities.

The church has to employ practical ways of incorporating eco-sensitive elements in their worship liturgies and teaching. The Accra Confession by the Reformed churches, and adopted by World Council of Churches (WCC) has to be implemented at the grassroots of the church, and by so doing the general citizenry would be positively affected. If planetary education is taken to schools at primary level, to pupils who are seven years, (official age to start primary education in Zambia) by the time they complete school at eighteen or nineteen years, they would be responsible citizens even in their places of work at the age of twenty-three and above. This, we believe can serve as a frame work for sustainability of creation, in Zambia and particularly in the Copperbelt around the mines, and beyond.

CHAPTER SIX

FINDINGS AND RECOMMENDATIONS

6.1 Findings

Having explored and identified values of nature, the purpose of creation and the Earth Community's interdependence, and the Biblical perspective on ecological justice; we wish to draw out the following finding:

6.1.1 Loss of cultural heritage

By cultural heritage we mean the cultural values such as creation mythologies, cultural values and norms in the social fabric of the *Lambha* people of the Copperbelt. The removal or depletion of forest species, animal species and the general cultural attitude has been as a result of industrialisation of the Copperbelt region through the mining industry.

Plant species which would help the locals in treating ailments and known diseases have been cleared, or they cannot grow any longer due to pollution. Forests, landscape and hillsides which served as places of reflection on God's wisdom, care and providence for the indigenous communities are either cleared, deformed or occupied by mine pits, shafts, smelting plants and residential areas.

That is to say, the traditional understanding of nature which contributes so much to human life and the understanding of God by humans is wiped out or distorted. We agree with John A. Grim who asserts that "in indigenous local cultures, experts exist who are peculiarly aware of nature's organising principles, sometimes described as entities, spirits, or natural law. Thus, knowledge of the environment depends not only on the relationship between humans and nature but also between the visible world and the invisible spirit world.... Thus, the unseen is as much a part of reality as that which is seen" (Posey 2001:4), this means that comprehension of what is not seen is difficult and even impossible without that which can be seen, say in nature. When God is worshipped as creator, what is it that the modern generations can see physically to appreciate of this God? We firmly maintain, that there has been distortion and abuse of nature based on misinterpretation of scripture by many Christians today; the scripture which was authored in places

during generations when most of the physical features of nature and weather patterns were undisturbed. The pedagogical principle, “teach from the known to the unknown” is still relevant for faith communities. We maintain that God is revealed in nature besides scripture and the divine work of the Holy Ghost. Mbiti observes that in most indigenous societies, “it is held that the land of the departed is in the woods, forests, river banks, or hills somewhere in the country. Such places are, therefore, often avoided, and people may not build homes or cultivate fields there. They do not wish to disturb the departed.”(Mbiti 1975:117) Without these features in the Copperbelt the indigenous communities can no longer hold on to their belief in the sacredness of land, rivers and nature in general. The heritage is lost indeed.

The colonial powers with their production, consumption and profitmaking attitude has contributed to what we refer to as ‘loss of cultural heritage.’ The once colonised state of Zambia, even though independent, has continued to tread on the path of self-destruction through what is called development by mining and the industry’s constraints on nature.

6.1.2. Foreign investors and the law

The Zambian economic policies of liberalisation, especially for investors have left so much room for manipulations of both the human resources and the natural resources. We mean to say that when the state machinery does not take responsibility to inspect and put in place policies which protect the local industry, labour and the environment, the end result is exploitation by the investors. The Chinese investors in this case are the worst culprits. The Human Rights Watch reported in 2011 that “...Chinese-run copper mining companies in Zambia routinely flout labour laws and regulations designed to protect workers’ safety and the right to organize unions...” (www.hrw.org 2011). If the rights of human beings who can speak for themselves cannot be respected in the face of the law, how much more are the rights of nature violated?

The Zambian Forest Act number 39 of 1973 allows local communities to harvest wood for domestic use. We have discovered that the local communities connive with foreigners who have financial capacities and indiscriminately harvest rare tree species such as the *mukula* tree, and export to China and other foreign countries. The Times of Zambia Newspaper reported on 13th June, 2014 that “...some

traditional leaders...had fled palaces after being mentioned in the illegal trade of not just ordinary tree species, but a jewel...slow growing *mukula* tree"(www.times.co.zm 2014). The tree is scientifically known as *Pterocarpus chrysotrichus*. The loss of trees and the rest of the forest species are devastating to biodiversity, nature and human life in the Copperbelt, and the rest of Zambia. Law abiding investors would help the country to develop sustainably, and by so doing support the government of the day.

6.1.3. Misinterpretation of Scripture

The dominium command in Genesis 1: 28, we admit has been grossly misinterpreted, especially in western Christian attitude, although there is a realisation of lately that the non-limited growth in economics, populations and consumption made worse by globalisation, is resulting in going beyond what the global ecosystem can sustain. (Meadows and Randers 2004:289). What started as an agricultural activity to till the land and tend the garden (Gn 2:15) has grown into deep digging by mine companies, and when Open Pits are used; no methods of covering such pits are implemented. The earth is 'raped' and left for the dead, so to say. Moltmann confirms our statement when he contends that "the misunderstanding of creation as a primal, finished and in itself-perfect condition has meant traditionally that the designation of Genesis 1:28, 'Be fruitful and multiply, and fill the earth and subdue it', has been seen as man's true essential destiny...a one-sided stress on man's special position in the cosmos"(Moltmann 2007:127). This implies that the Yahwistic Document (as in Gn 2:15) was not paid attention to, instead people concentrated on the Priestly tradition (as in Gn 1:28) in order to take advantage of creation. Ministers of the Gospel and the general membership of the Church have to be responsible for right interpretation of scripture with regard to the protection of Earth Community.

Humanity has to educate itself about the carrying capacity of earth in order for humans to continue enjoying themselves and make life bearable for future generations. "This order must be respected. The human race is called to explore this order, to examine it with due care and to make use of it while safeguarding its integrity" (John Paul II 1996:233). The attitude in humanity has to suit the designation of caring for creation. Pope Francis contends that "people may well

have a growing ecological sensitivity but it has not succeeded in changing their harmful habits of consumption which, rather than decreasing, appear to be growing all the more" (Francis 2015:34). Indeed a lot has to be done in practice because a lot of resources have been spent on discussions, conferences, seminars and other theoretical activities by national, regional and global organisations. Very little in practice has been achieved by all parties; the worst being the most affected third world countries.

6.1.4. Disobedience of God's Law

The ecological crisis is to a larger extent as a result of human disobedience of God's command to care for creation. The attitude of only using to human advantage has resulted in overusing and depleting elements of the global ecosystem. Right from the disobedience of the first humans, Adam and Eve to the present generation, we assert earth has been robbed of its integrity. We agree with the argument that "...dominion does not mean domination; rather it means humans taking responsibility for the earth as stewards and viceroys of that creation" (Deane-Drummond 2008:82). It is only when humans act responsibly in their activities on earth, that obedience of God's law will receive compliance. The advanced science and technology of the present global generations alone cannot avert the ecological crisis which is already in progress.

However, obedience to God's command to care for creation by humans should be the guiding ethical principle for science and technology in the quest to resolve ecological issues. This is in agreement with Klaus Nurnberg who argues that "science and faith are indispensable and complementary human pursuits. Science describes, explains and predicts immanent reality; faith provides meaning, acceptability and authority" (Nurnberg 2012:1 (TSSA)). But Nurnberg's castigation of science to be a guide to technological advancement for the consumer culture is proved in many economies, including the Zambian context. Who consumes the products of this technological advancement is yet another problem that leads to unresolved ecological issues. We have further established that the industrialised West is the beneficiary from the destructive mining industry, and the continued disobedience of God's command to care for creation in Zambia.

6.1.5. The crown of creation

The dominium command cited above does not imply that humans are the crown of God's creation. The giver of the law to care for what was created is the crown of creation, and all that which was created was for that purpose. God's rest (Sabbath) on the seventh day of creation is enough evidence of why God created the orderly cosmos. Moltmann rightly argues that "God created the world for his glory, out of love; and the crown of creation is not the human being; it is the Sabbath. It is true that, as the image of God, the human being has his special position in creation. But he stands together with all other earthly and heavenly beings in the same hymn of praise of God's glory, and in the enjoyment of God's Sabbath pleasure over creation, as he saw that it was good" (Moltmann 1985:31). That is to say, that human beings are responsible to God as far as care and the responsibility mandate is concerned.

Mining for minerals on the Copperbelt of Zambia must be carried out with the realisation that life and nature have to be sustained for God's sake. The creator did not plan for a short lived, futureless and polluted Copperbelt in Zambia. The minerals were silently lying below ground surface, until humans in the name of colonisers made a discovery and started exploiting the resources for the worse on the part of the creator and humans themselves. Nature in and around the mining towns does not reflect its integrity any longer. It is disfigured, polluted, destroyed and dismembered. The original animal inhabitants are depleted, and even if there was restocking there would be no habitat suitable for them; they would not survive. It is also a known fact that loss of biodiversity on the Copperbelt has not been acknowledged by the government of the Republic of Zambia; while high levels of pollution continue to affect the residents whose respiratory infections have grown from bad to worse, particularly in Mufulira town. However, the statement by Sallie McFague is worth noting here when she says "the planetary agenda involves everything, and everyone. It involves everything because we know that all things, all beings and processes on the planet, are interrelated, and that the well-being of each is connected to the well-being of the whole" (McFague 1993:8). We wish to stress therefore, that although the Copperbelt inhabitants are the immediate affected, the issue concerns the global community. Something has to be done collectively at national, regional and international level.

God is concerned about creation, including the caretakers themselves, humans. Everything that was created was very good, so the creation account states (Gn 1:31). The ecological crisis, we maintain is due to human activity, and therefore humans must work hard to collectively help to resolve the mess. McFague argues that God is the “ubiquitous God *par excellence*; this God is never absent. If this God were absent, nothing else could be present: everything would collapse or disappear, for God is being-itself the source of all being without whom nothing else is” (McFague 2001:149). God therefore cannot forsake creation and all its components.

6.1.6 Extinction of species

Wherever large industry, such as mining is taking place, as we have cited above, large portions of land are cleared to give way to ore extracting and processing plants. Forest and animal species are depleted and displaced. We reaffirm the statement in the State of the Environment report of 2008 that, “loss of forests occurs mainly due to clearing land for agriculture, wood fuel and settlements. Indigenous forest productivity and tolerance to environmental stress is reduced by bush fires. Severe or late fires are destructive to forests. Occurrence of frequent late fires prevents regeneration of tender species and this changes species composition” (State of the Environment report 2008:50). It is almost impossible to recover lost species anywhere in the world unless restocking of such species is carried out under normalised environmental conditions. The Copperbelt indigenous forest and animal species have been permanently lost.

6.1.7 Sustainable Development and Resilience

Sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: The concept of needs, in particular the essential needs of the world’s poor, to which priority should be given; and the idea of limitations imposed by the state of technology and social organisations on the environment’s ability to meet present and future needs” (www.iisd.org, 2013). Findings of our study with regard to sustainability of resources, life, jobs and the economy in general are that it cannot be taken for granted. Mines have a life span during which other factors come into play. In the January 2015 article entitled ‘The

copper price slump coupled with the new 2015 tax regime will cripple Zambian Mines,’ the Zambia Chamber of Mines economist Shula said, “over half of Zambia’s copper production is currently in a loss-making position following a consistent decline in the international copper price”(Shula 2015:1).

The effects of a lower price for copper have been felt by employers, employees, and the government and of course the entire Zambian economy is affected. When such a scenario is the case, natural resources such as trees, water and the rest are not spared in terms of sustainability. Their carrying capacity is impaired because even the minimal mitigating factors such as environmental support programmes cannot be funded. The sustainability of economic development which is based on copper’s 80% exports is already at risk. We have further found out that the price of copper is, and has been and will most likely remain highly unpredictable. This is because, as the article indicates, that, “copper is a base metal, heavy, plentiful and cheap when compared to precious metals such as gold and silver. It is purchased by consumers when required” (Shula 2015:1). Sustainability for development and natural resources is far from being realised for as long as copper mining as an industry cannot be sustained.

Sustainability works hand in hand with resilience, particularly in the case of nature. The ability to resist depletion and degradation by species and the environment depends on how much the ecosystem is working in a particular locality. Our findings reveal that for as long as the copper mining industry remains unsustainable, resilience in natural resources and the economy will fail. Both economic development and nature can regain their resilience if and when there is diversification in the economic development of a country.

6.2. Recommendations

We recommend that further research be carried out particularly on the interrelated effects of unsustainable copper mining in Zambia, and the economic effects on the Zambian people. Further, a research can be carried out on how much copper mining in Zambia benefits the country of origin for investors, in comparison to what Zambia benefits from the industry.

The levels of corruption and compliance in enforcing the law are other areas which we recommend for research, most appropriately by law schools and other social science disciplines. We recommend that further research be carried out on the ecological effects of human activities, including mining in Zambia. Issues of land clearing, pollution of water bodies, use of chemicals in the agricultural and other sectors, the effects of fossil fuels and suggestions for use of renewable energy are areas which require research. We further recommend for research on interdependence of human and non-human species in the Copperbelt, so that ecosystems and what it lacks can be established. A specific study of the theological impact of Christianity on African Traditional Religion in the light of eco-justice is recommended, for Zambia and the African communities.

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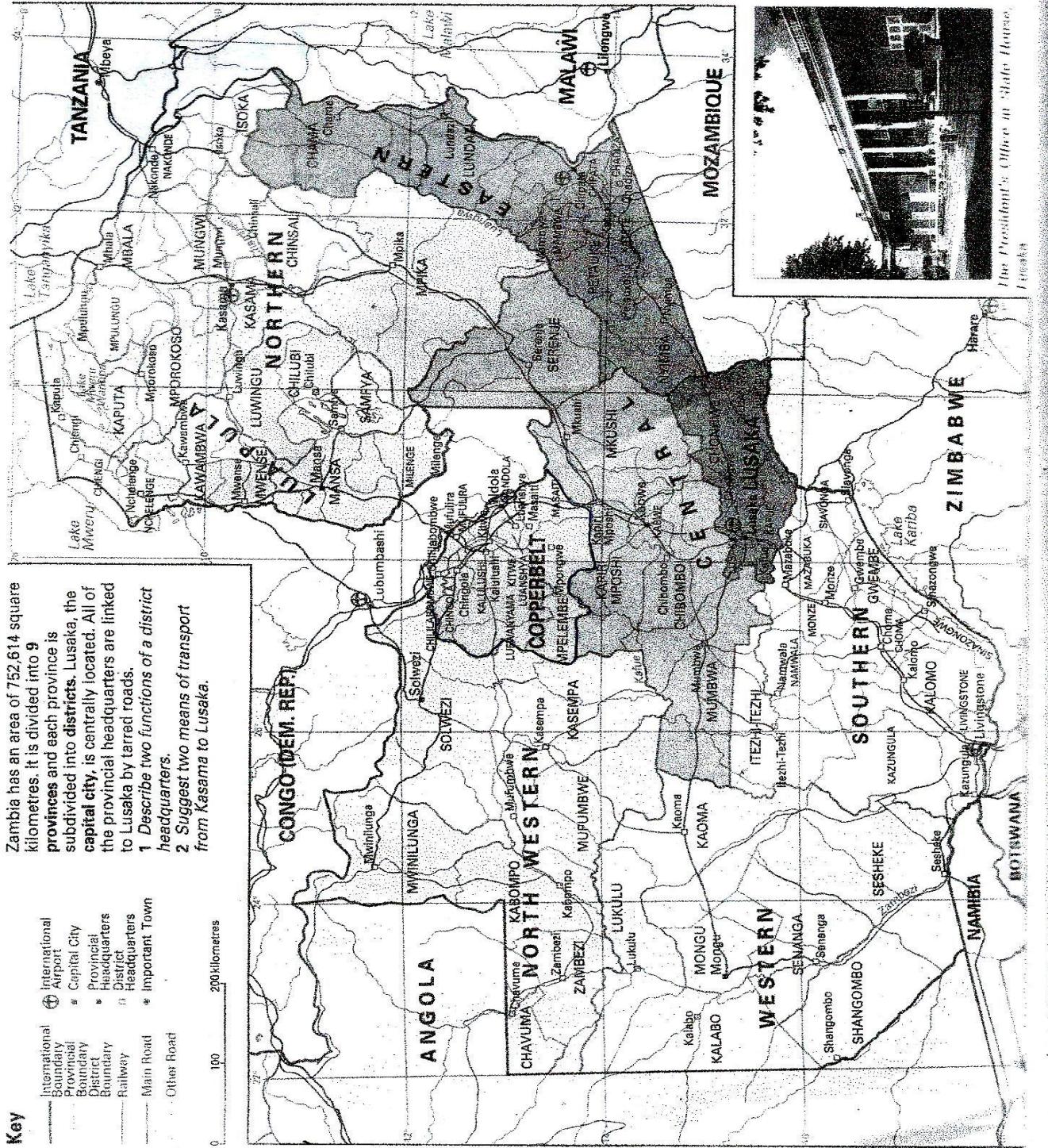
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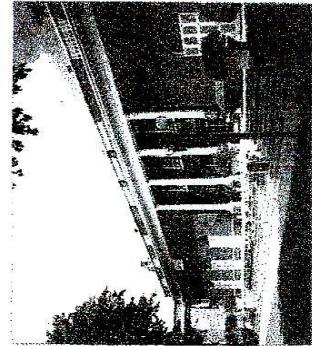
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(Courtesy of Zambia Consolidated Copper Mines Holding Ltd).

Map of Zambia



APPENDIX 1: MAP OF ZAMBIA AND THE COPPERBELT.



The President's Office in State House

Lusaka

APPENDIX 2: OPEN PIT MINE SITE.



Appendix 3: SULPHUR DIOXIDE FUMES.

