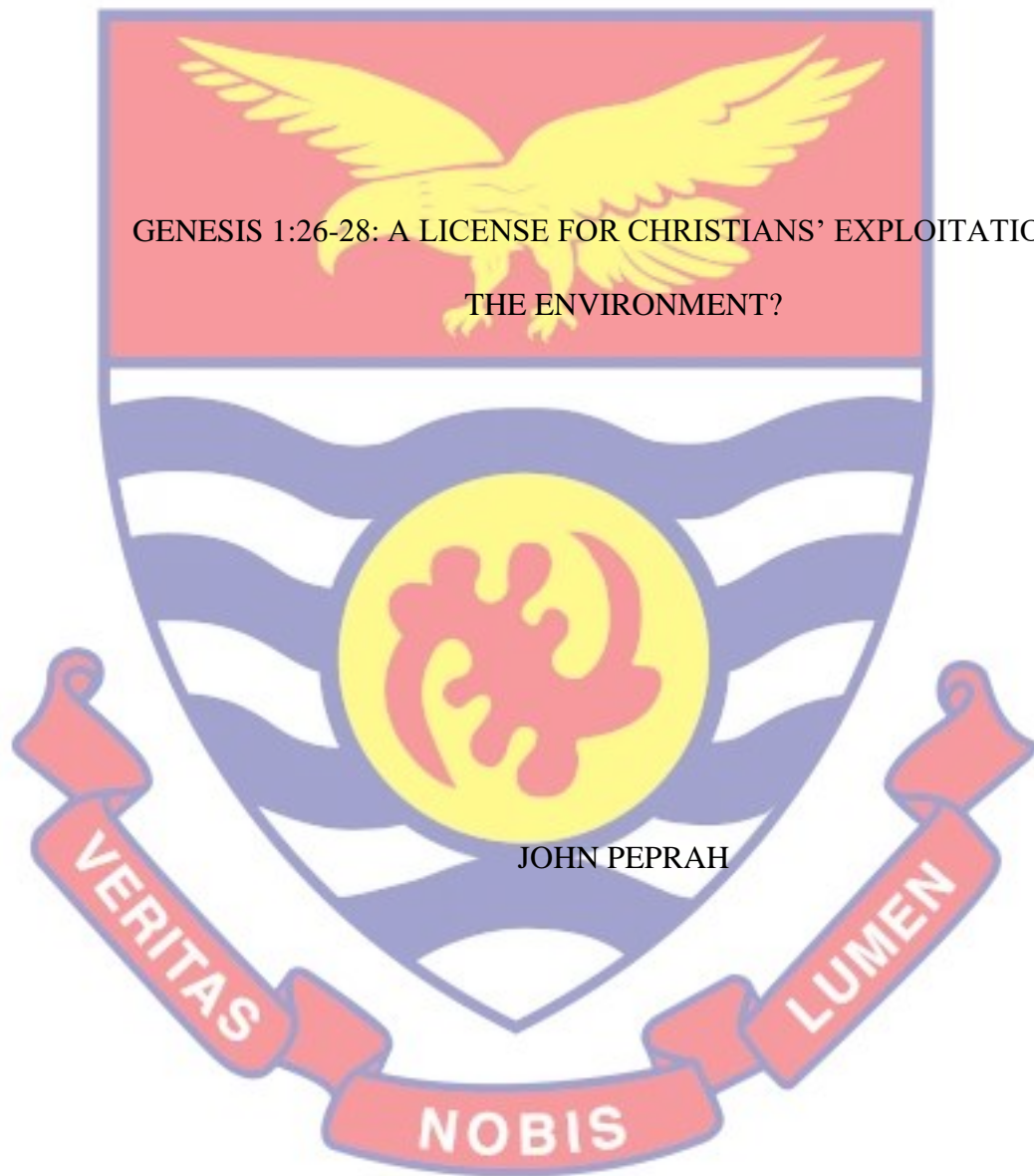


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GENESIS 1:26-28: A LICENSE FOR CHRISTIANS' EXPLOITATION OF  
THE ENVIRONMENT?

BY

JOHN PEPRAH

Thesis submitted to the Department of Religion and Human Values of the  
Faculty of Arts, College of Humanities and Legal Studies, University of Cape  
Coast, in partial fulfillment of the requirements for the award of Master of  
Philosophy degree in Old Testament Studies

OCTOBER 2022

## DECLARATION

### Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature: ..... Date: .....

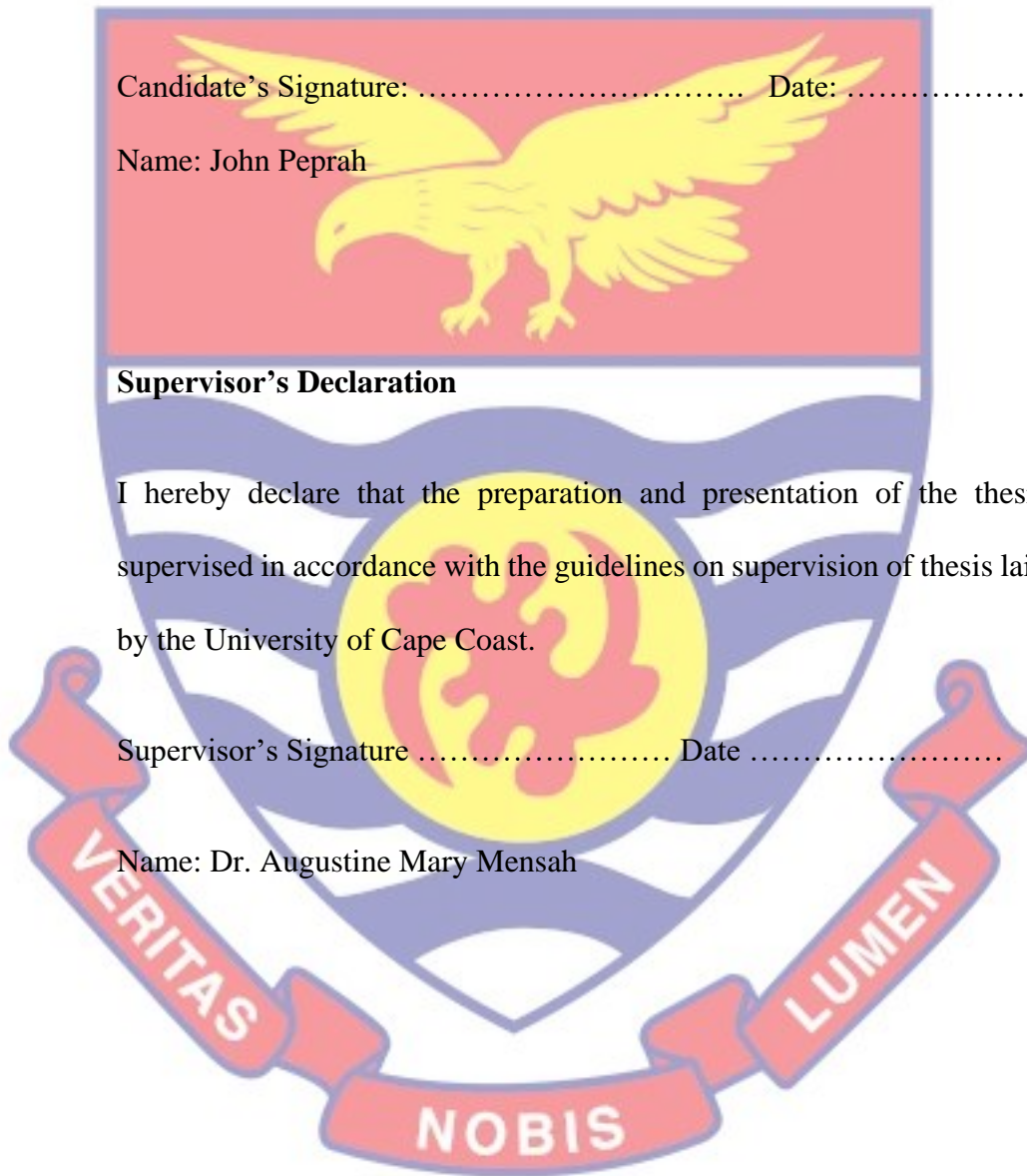
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### Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature ..... Date .....

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## ABSTRACT

The global ecological crisis is posited to be, perhaps, the number one problem facing the world-wide community in recent times (Breuilly & Palmer, 1992). The effect of this global crisis is known and felt everywhere. Scholars, by way of studying the causes of this contemporary global ecological crisis, have blamed the Judaeo-Christian tradition for being responsible. They claim that certain narrative features in the book of Genesis, particularly Genesis 1: 26-28, warrant human beings to exploit nature for their benefit. This research, therefore, explores Genesis 1:26-28 in order to establish what the text in its historical context means other than its license to Christians for exploitation of the environment as claimed by some scholars. The study is a description-based research which seeks to employ secondary sources of data. The researcher arrives at the conclusion through a textual interpretation and analysis guided by a historical-critical method of research. The analysis of the text is guided by Narrative Criticism proposed by Mark Allan Powell (1990). On the whole, the findings of the study show that the idea that human beings were created “in the image” and “likeness of Elohim” and hence perceive themselves as creatures above and beyond nature; and the view that the words “dominion” and “subdue” used in the text connote ‘domination’ and ‘exploitation’, are untenable. The historical interpretation of the text suggests ‘stewardship’ rather than ‘exploitation’ of nature. The study recommends that researchers should use a different approach or methodology for a comparison study to increase our understanding of the relationship between Christian Scripture and the environment.

**KEY WORDS**

Anthropocentrism

Contemporary

Ecological crisis

Interpretation

Root cause

Text



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## DEDICATION

To my dearest and lovely wife, children, and all the people called Methodists.







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## LIST OF ACRONYMS



CFC	Chlorofluorocarbon
FAO	Food and Agricultural Organization
GAW	Global Atmospheric Watch
GDP	Gross Domestic Product
GEC	Global Environmental Competitiveness
GFW	Global Forest Watch
GHG	Greenhouse Gas
GNA	Ghana News Agency
IPCC	Intergovernmental Panel on Climate Change
LPG	Liquified Petroleum Gas
NCCB	National Conference of Catholic Bishops
ODS	Ozone Depletion Substance
OECD	Organization of Economic Co-operation and Development
UNEP	United Nations Environmental Programme
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
WCC	World Council of Churches
WHO	World Health Organization
WMO	World Meteorological Organization

## CHAPTER ONE

### INTRODUCTION

#### Background to the Study

The issue of global environmental crisis is increasingly becoming a major problem to deal with in recent times. The effect of this problem is aggravating the plight of many people across the globe, more specifically, those in the less developed countries. The rate of environmental exploitation has become a serious threat to the survival of humanity on the planet earth and to the biosphere in general. It is obvious, as Stott has observed, “In this post-cold-war age it is environmental rather than nuclear destruction which has become for many the greatest threat to the human race” (Stott, 1999, p.123).

Also, Gillmor expresses the view that:

The constant references in the media to issues such as depletion of the ozone layer, global warming, acid rain, deforestation, desertification, famine, land degradation, loss of habitat, extinction of species, nuclear accidents and pollution in all its forms ... should be sufficient reminders of the ecological crisis facing humankind (Gillmor, 1996, pp. 261).

Williams, a South African scholar theologian, has observed that issues of pollution in various forms such as land, sea or the atmosphere, the diminution of resources, the varying patterns of life and the extermination of various species; and the rise of erosion, population growth and of poverty are each of a key disquiet (Williams, 2000). Scholars have opined that if the catastrophe cautioned against has not though happened, would sooner or later unless there is a determined human action to divert it.

According to Pope John Paul II (1990), since we are confronted with the extensive exploitation of the environment, people everywhere are coming to understand that we cannot continue to use the goods of the earth as we have in the past. The public in general as well as political leaders are worried about this problem, and connoisseurs from a wide range of disciplines are studying its roots.

In June 1992, over 25,000 people assembled in Rio de Janeiro for the United Nations Conference on Environment and Development. The conference, popularly known as the 'Earth Summit', was a gathering of more than 100 heads of states with representatives of other governments, also the scientific community as well as special interest groups. This conference was held to discuss pertinent issues of environmental disasters happening in most parts of the world and how to confront them because they posed humiliating threat to both humanity and entire biosphere.

But how did we come by this? According to many scholars, Christians largely are the cause of the global environmental crisis of today. This idea has been given a concrete expression by an American ecologist, Lynn T. White, in a lecture he gave which was later published in 1967 in an American journal *Science*, entitled: "The Historical Roots of our Ecological Crisis" (White, 1967). In this article, White asserts that Christianity in the Middle Ages was the root cause of the 20<sup>th</sup> century ecological crisis because of Christians' "dominion mandate" in the creation account narrated in the Judaeo-Christian scripture. His argument is based on the fact that, to him, Christianity is an anthropocentric religion. "Anthropocentrism is the idea that the universe revolves around humans both physically and conceptually" (Diamond, 2017, pp. 1). The use of



this concept of anthropocentrism here, is based on the reading of Gen. 1:28 in which God mandates humankind to exercise dominion over creation (Bishop, 1991). By this statement of White, man is viewed to have been placed over and above creation which gives him right to exploit the environment for his benefit (Bishop, 1991). Since the publication of White's article, many scholars have written extensively on the issue either for or against his statement.

These Bible readers, likewise other scholars, who follow White's view argue that Christians see the world as created for their use. It is further argued that the fundamental dogma of the Judaeo-Christian religion and interpretations of them down the ages have been unfavourable towards the environment, so that religion bears a huge burden of guilt for the damage done (Gillmor, 1996). This is how they have come to understand the Genesis 1:26-28 account, where it is indicated that humankind is commissioned to exercise dominion over the earth and to subdue it.

The critics who blame the dogma of the Judaeo-Christian religion for the wrongful attitude of Christians towards the environment trace back to certain features of the creation narrative in Genesis 1. The point of their argument focuses on the instruction of God for humankind to, "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (Genesis 1:28). But, does this text sanction humankind to exploit the environment

### **Statement of the Problem**

In recent decades, there has been a hot debate among Christian and non-Christian scholars about the interpretation of Genesis 1:26-28 and its relevance

on the relationship between human and non-human environment. These scholars and theologians have interpreted this particular text to make varying arguments. The varying interpretation of the said text has, therefore, given rise to conflicting understandings as well as controversies over humankind's attitude towards the environment.

In an effort to study the causes of this contemporary ecological crisis, which some scholars have blamed it on Christianity, our focus is to explore Genesis 1:26-28. Does the reading of the text in Genesis 1:26-28 allow or justify Christians to manipulate (use or misuse) the environment to serve their needs? There is a significant number of scholars who are of the view that this text legitimizes exploitation of the environment, and as a result, contributes largely to the contemporary ecological crisis.

However, there is more to the interpretation of this particular text than what scholars understand it to mean. One cannot only focus on a particular wording of this text to provide a complete picture and thereby concluding that it sanctions environmental destruction. To reach an informed understanding of the text, it must be read in its proper context of the entire story in the Bible. For this reason, Genesis 1: 26-28 is being looked at from its historical perspective to assess its meaning vis-à-vis the view point made against Christianity based on its interpretation.

And as suggested by West (2006), such contentious text requires an act of engagement with contextual realities rather than an interpretative experiment or scholarly research. In the light of this, the research aims to analyse the relationship between Genesis 1:26-28 and the environment through a narrative analysis of the text as part of the first creation account in Genesis. 1:1—2:3.

## Purpose of the Study

The main purpose of this study is to explore Genesis 1:26-28 to establish the fact that the text in question does not sanction Christians' exploitation of the environment as some scholars postulate. By extension, the study seeks to bring to light what is more to the meaning of the text other than what scholars ascribe to it. Similarly, it is to suggest an alternative perspective from which the text can be looked at in terms of human-creation relationship other than the anthropocentric interpretation given to it. Additionally, the study also seeks to offer the ordinary readers an opportunity to see the text from a historical-critical perspective as far as its interpretation is concerned as against its literary interpretation.

## Objectives of the Study

The objectives of this study are:

- i) To attempt a translation and exegesis of Genesis 1:26-28 from its Hebrew text.
- ii) To re-examine the meaning of Genesis 1:26-28 in its historical-critical perspective.
- iii) To establish whether Genesis 1:26-28 warrants a license for the Christians' exploitation of the environment or not.
- iv) To explore the state of current ecological crisis and some major interventions put forward by governments and other important stakeholders.
- v) To re-examine man's responsibility in the creation order from God's perspective.
- vi) To propose an alternative point of view from which the text can be looked at regarding human-creation relationship.

## Research Questions

This study is guided by the following research questions:

- i) What does the text in Genesis 1:26-28 mean in its historical-cultural setting?
- ii) Does the text in Genesis 1:26-28 connote exploitation of the environment?
- iii) Is Christianity to blame for the root cause of contemporary ecological crisis?
- iv) What does the Bible teach Christians to do with regard to the environment?
- v) What is the impact of Christianity in the attempt of addressing contemporary global ecological crisis?
- vi) By what means can a modern environmental attitude be extracted from ancient scriptures?

## Significance of the Study

This study is important for five main reasons:

- i) To provide a scholarly contribution to the debate on Judaeo-Christian scripture and contemporary ecological crisis with reference to the creation narratives. The findings of this study can be a contribution to literature on both hermeneutics and environment or ecology. It can also serve as a reference material for further research work in this field of study.
- ii) To help broaden one's horizon on the nature, outlook, and implications of the contemporary ecological crisis vis-à-vis the creation narratives recorded in Genesis 1:26-28.
- iii) To also help Christians, in particular, to adopt a pragmatic approach and positive attitude in the fight against environmental exploitation, since the

destruction of the environment is a threat to human survival and extinction of other important ecological species.

iv) To help policy makers and relevant stakeholders appreciate the nature of the environmental crisis and its associated dangers so that appropriate steps can be taken to remedy the already escalating situation.

v) To establish a basis whether or not the text in Genesis 1:26-28 warrants a license for Christians' exploitation of the environment.

## RESEARCH METHODOLOGY

### i) Introduction

The research methodology explains the instruments or techniques and strategies that are employed and their significance in conducting this research since every mode of research has its own peculiar technique. In line with this, Merian (1994) stresses that a research must be carried out by observing the situation through a searching process. The overview of the research methodology used in this study includes research process, research instrument/procedure, and the historical-critical method.

### ii) Research process

This research project is built on a textual analysis and interpretation guided by a historical-critical method of research. It is worth noting that this contentious text under study has its own story and inherent implications which can be revealed through a careful contextual analysis and interpretation of the text. Therefore, due consideration is given to the text in its historical context, its interpretation and conclusion opined by scholars to arrive at the contextual realities of the *pericope* (textual unit) of Genesis 1:26-28.

### iii) Research instrument/procedure

The study is a description-based research which seeks to employ secondary sources of data. These sources have been desktop review of literature including books, published and unpublished works, journals, newspapers, online articles, academic papers, as well as other scholarly works from the library, that have a bearing on the research topic under study. The data has been gathered in order to meet the objectives of the study, and also to provide the basis for the conclusions to be drawn and recommendations to be made with regard to the interpretation of Genesis 1:26-28.

This study, being qualitative in nature, is concerned with historical narratives, their meanings and patterns are explained somewhere in the interpretation and analysis of the text in question as suggested by Amedahe (2015). The study takes note of proper process of collection, analysis and interpretation of data which culminates in presentation of my findings in a systematic manner, addressing all my research questions one after the other. I, at the end, step back and provide some meaning about the said textual narratives based on my personal views and/or comparison with past studies – personal reflections and literature. I then give general subjective assessment and contribution to knowledge.

### iv) Historical-critical method

Many scholars have examined Genesis 1:26-28 and applied different interpretations to it using different approaches. These scholars have arrived at different conclusions which have made some argue that the text in question is a guarantee for Christians to exploit the environment.

However, the researcher has employed historical criticism to re-examine the same text in this research work. The historical criticism, also known as the historical-critical method or higher criticism, “is a branch of biblical criticism that investigates the origins of ancient texts in order to understand ‘the world behind the text’” (Soulén & Soulén, 2001). In other words, historical criticism deals with the study of literary texts, particularly ancient texts and especially the bible, in terms of their historical origins and development within those contexts. This method also often seeks answers to the ever-elusive question of what is called “authorial intent”: *What did the author intend for this text to mean in his or her time and place?* “This methodology breaks the text into units and traditions and attempts to get behind the existing final form of its prehistory” (Asante, 2005).

The historical-critical method explores the roots or backgrounds of a text and relates them to other texts written at the same time, before, or recently after the text in question. This method lays much emphasis on the sources of a document to determine its author, date and place of origin. Pope (2007) explains that the method also investigates issues such as, “What is known of the author and his times?”, “How was he influenced by them?”, “What was his personal story?”, “What other texts did he write and how do they compare what is before us?”, “How does the writing we are studying compare to similar documents of the time?”, “How did it come to be in the form we have it today?”, “What did it mean to the people who first read or heard it?” These and many more similar questions are what historical-critical method of research seeks to answer. This method of enquiry, therefore, takes account of the fact that a particular biblical text was written long ago, in a cultural milieu very different from that of the

contemporary, and that any attempt to understand the text must first of all be in the context of that ancient setting. It is obvious that the goal of this method of inquiry, nonetheless, is not essentially historical in a narrow sense; it could just as well be the theology or rhetoric of the text revealed in light of its historical context (Collins, 2006).

**v) Why historical-critical method for this study**

I intend using this method to interpret the text because it illuminates the meaning of scripture and its understanding for the writer and the audience for which the text was originally written. In other words, the historical criticism attempts to find out the author's intention behind the given text. The use of this method, apart from discovering and describing events that have happened in the past, will present a view to interpreting the text in understanding the present issue of contention. This is the point emphasized by Percy Scott Flippin (1923) as he has stated, "the knowledge of the past is of value in dealing with modern problems, for if history does not repeat itself, there are undoubtedly some very striking analogies."

In consonance with the relevance of the historical critical method in dealing with a biblical text, Pope Benedict states:

It has brought us back closer to the text and its originality, it has shown us more precisely how it grew, and much more besides. The historical-critical method will always remain one dimension of interpretation employed by contemporary scholarship as an integrated approach. On the one hand, it presents the essential elements of the historical method as a necessary part of access to the Bible. At the same time, though, it adds that the Bible has to



be read in the same Spirit in which it was written. It has to be read in its wholeness, in its unity (Benedict XVI & Seewald, 2010, p.156).

It is obvious that historical criticism conforms to modern scholarship with regard to biblical studies and interpretation. For it is argued that the modern study of the Bible is tilted towards “analysis of the biblical text in its historical, social, cultural, linguistic, and religious contexts in which the Bible was written and in which it was read” (Mensah, 2018, p. 33). It is explained that the treatment of the biblical text along these lines are what scholars often refer to as ‘critical analysis,’ where the term ‘critical’ refers “to the idea of being ‘careful,’ paying close attention to details and problems in the biblical text ... by the interpreter’s theological or ideological presuppositions” (Mensah, p. 33).

By critical analysis of the Bible, it is understood that critical scholarship does not in any way seek to criticize the Bible or to challenge its authority; neither does it project a negative perspective towards it. Msgr. Charles Pope (2007) posits that historical criticism “is not criticism in the sense of disapproval or the examination of faults and mistakes, but instead is an analysis of the text in the hope of better understanding it.” All that modern critical scholarship is concerned about, and has subsequently brought to the fore, is the close attention paid to the text by means of modern scientific methodology to prescribe solutions to the problems identified in the biblical text.

**v) Steps followed in the methodology**

The researcher followed the steps in historical research proposed by Howard Lune and Bruce L. Berg for Qualitative Research Methods for Social Sciences. According to the duo, historical research involves the following steps:

- i) Identification of an idea, topic or research question
- ii) Conducting a background literature review
- iii) Refining the research idea and questions
- iv) Determination that historical method is the method to be used
- v) Identification and location of primary and secondary data sources
- vi) Evaluation of the authenticity and accuracy of source materials
- vii) Analysis of the date and development of a narrative exposition of the findings (Berg & Lune, 2012, p. 311).

With the first step, the researcher states his research topic or idea which bothers on whether Genesis 1:26-28 is a license for Christians' exploitation of the environment. He proceeds further to identify the main concepts or key issues concerned in this topic anthropocentrism, ecological crisis, interpretation and what have you. With the second step, the researcher moves on to find one or more sources regarding background information to the topic. The most available background information or sources employed in the study are books and articles published by scholars including online articles. With this step, the researcher was exposed to understand the text in a broader context.

Again, with the help of some good literature, the researcher was guided to refine the research topic and question. He has been able to work within the context of the study by focusing the purpose and objectives of the study. He employs the historical-critical method as one of the most appropriate approaches to study a biblical text in recent times as indicated earlier. The researcher searches mostly for reliable secondary sources of information to help him meet the demands of the purpose and content of the study. Admittedly, secondary sources are often limited because they are not eye-witnesses of the

events they talk about. However, the researcher has a comprehensive review of the gathered materials through a critical criticism to validate its authenticity. With respect to analysis of the date and development of a narrative exposition of the findings, the researcher has discussed the details in chapter three of this study. He discusses the historical records of the book of Genesis such as its authorship, audience and date of the book. His exegesis and analysis of the text reveals its historical and contextual meaning.

## **LITERATURE REVIEW**

### **a) Introduction**

Both the issue of environmental concerns and man's responsibility over creation narrated in the book of Genesis have been discussed at length by scholars and theologians. Their works offer the opportunity to critically examine their view points on issues relating to the topic under study. The goal of the review is to discover the gaps in their works with the intention of attempting to improve upon them.

As part of this study, there has been a critical review of articles and books of some authors in this field of study. The main themes covered in this literature review include meaning of Environment/Ecology, the theological and ethical challenge of the ecological crisis, and human-nature relationship.

### **b) The Judaeo-Christian tradition and the root cause of ecological crisis**

One of the most controversial issues that has generated heated debate for some decades now, and still gives signals of perpetuating at least within the next immediate future decades, is the charge against the Judaeo-Christian tradition of being responsible for the root cause of contemporary ecological

crisis. Adherents of the Judaeo-Christian tradition find it as an unjustifiable affront to their view on creation and humans' attitude toward nature.

It all began with the distinguished American academic, historian and ecologist, Lynn Townsend White, Jr., as mentioned earlier, whose insightful lecture in 1967 indicted the Judaeo-Christian tradition of responsibility of ecological crisis and used biblical reference to justify his argument. This article, which has acquired a hegemonic legacy, has been one of the most widely cited by scholars to advance their debate in analyzing the relationship between religion and environment or ecology. It is noted that apart from White, many other scholars (McHarg, 1969; Coulter, 2001; Maltby, 2008) have also made similar charges against the Judaeo-Christian religion in varying forms. It is on record that the interpretation of the basic doctrines of these religions since the publication of White's thesis has been unfavourable towards the environment, leading to a position that the tradition is liable for this contemporary ecological crisis.

In White's view, the Judaeo-Christian religions have damaging impact on the relationship between humankind and nature because of certain narrative features in their scriptures that warrant human beings to exploit nature for their benefit. White, perhaps, was originally influenced by his reading of Aldous Huxley's discourse on a favourite topic: *Man's Unnatural Treatment of Nature and Its Sad Results*. According to White, Huxley illustrated his argument on the premise that a little valley in England which used to have pleasant grassy glades for centuries was gradually being taken over by unpleasant overgrown brush. Huxley attributed this development to a deliberate introduction of certain chemicals by local farmers which caused a disease, called *myxomatosis*, to the

rabbits that formerly checked the growth of such a species with the intention of reducing the rabbits' destruction of crops.

In his article, White first postulates a relationship between humankind and environment. He posits that "ever since man became a numerous species, he has affected his environment notably" (White, 1967, p. 1203). White again notes that "what we do about ecology depends on our ideas of the man-nature relationship" (White, p. 1206). He further admits that in relative terms, unintentional changes in human conducts frequently affect nonhuman world. He therefore outlines some specific examples of human actions that have had harmful effects on both the environment and several kinds of species. Among these actions are the firing of cannons in the early 14th century which affected ecology by compelling many people to head towards the forests and mountains for more potash, sulfur, iron ore, and charcoal. This action at the same time resulted in erosion and deforestation. Other examples include extinction of certain kinds of animal species due to excessive hunting, the use of hydrogen bombs in warfare, the smog problem that emerge due to industrialization, and high-level combustion rates of fossil fuels.

According to White, all these activities may contribute to "alter the genetics of all life on this planet" (White, 1967, p. 1204). It is claimed that "human ecology is deeply conditioned by beliefs about our nature and destiny—that is, by religion" (White, p.1205). This therefore implies that religion expresses human relationship with nature and also affects the way we treat the biosphere. White again states that the inappropriate treatment of nature really reached a greater height during the Middle Ages when Christians' belief system gained much control in Europe. He is convinced that this era witnessed another

unusual development regarding agricultural practices through which man lost unity with nature and started destroying it. White then maintains that the spread of Christianity cannot be divorced from growing scientific advancements, and the exploitation of nature.

In the words of Jenkins, White understands that “the destructive alliance of science, technology, and democracy that now threatens the earth was developed through the worldview of ‘the most anthropocentric religion the world has seen’” (Jenkins, 2009, p. 283). Western Christianity's cosmology influenced Europeans to see themselves as separate and transcendent over nature, which consequently globalized environmental exploitation.

In White's view, pagan animism, prior to its dominance by Christianity, was thought to have ecologically friendly worldview and there was “a common belief that every piece of nature had its own spirit” (Bolak, 2016, p. 3). For example, man would not take anything from nature without first having to make peace with that spirit. But everything was relegated to the background as soon as Christianity overpowered paganism and assumed one of the most common religions in Europe. Pope Francis affirms that “Judeo-Christian thought demythologized nature,” meaning that its adherents do not consider nature as divine anymore (Francis, 2015, p. 78). Similar to Pope Francis, Bolak (2016) emphasises that the view that nature relates with spirits rapidly diminishes and that leads to humans mistreating nature without caring for it or being sensitive to human's responsibility to it.

What is perceived to be White's stark indictment of Christianity that has triggered successive reactions is the provoking argument that “the historical roots of our ecologic crisis” hinge on religious cosmology precisely in Western

Christianity's anthropocentrism and instrumentalist view of nature (Jenkins, 2009).

Nevertheless, Bolak (2016) queried why Christianity would succumb to alter human opinions of nature and how it could also permit the abuse of nature on so many times. The interpretation from White's reading of Genesis leads him to state that the Bible warrants human's exploitation of nature. This position is similarly upheld by Paul Maltby as he claims that "Christian fundamentalist hostility to environmentalism typically finds its endorsement in the book of Genesis" (Maltby, 2008, p. 119). There are a few verses of Genesis whose interpretations, as White and other proponents view them, support Christians and the entire human race to exercise 'destructive' dominion over nature.

These environmental fundamentalists' literal reading of the injunction that "man" should "fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth" (Genesis 1:28) provides the basis for the view that God gives nature as a resource for unrestricted human use. Ann Coulter (2001), the right-wing Christian radio talk-show host is often cited as someone who vehemently justifies this scripture. She is cited to have observed, "God gave us the earth. We have dominion over the plants, the animals, the trees. God said, 'Earth is yours. Take it. Rape it. It's yours'" (Maltby, 2008, p. 120). But this view is, however, contested by the fundamentalist economist E. Calvin Beisner who has remarked that to give the earth to satisfy human needs is to be guilty of "idolatry of nature" (Beisner, 1990, p. 165). The fundamental environmentalists argue that the human's right to exercise dominion underscores the view that the

triumph of a sovereign and manipulative control over nature is legislated by the Judaeo-Christian scripture.

One such critic is a more outspoken Scot writer and inspired ecologist, Ian L. McHarg, who writes that the Genesis narrative (i.e. Genesis 1:26-28),

in its insistence upon dominion and subjugation of nature, encourages the most exploitative and destructive instincts in man rather than those that are deferential and creative. Indeed, if one seeks license for those who would increase radioactivity, create canals and harbors with atomic bombs, employ poisons without constraint, or give consent to the bulldozer mentality, there could be no better injunction than this text” (McHarg, 1969, p. 26).

McHarg further maintains that God’s endorsement of man’s dominion is also a clear affirmation of war on nature. He sums up his argument with a futile proposition that “dominion and subjugation must be expunged as the biblical injunction of man’s relation to nature” (McHarg, p. 197). John Drane, however, rejects this assertion as he states that “such an opinion is not only textually questionable, it is also historically untrue: Christianity existed for at least 1500 years before the rise of science and technology, and the beginning of the present crisis” (Drane, 1993, p. 11). Meanwhile, it is with this same text and idea that White interpreted “dominion” to indicate rule and authority and “subdue” also to indicate conquer and suppress (Bolak, 2016).

Furthermore, White is of the view that God created everything to serve solely human needs and interests; and that Christianity is the most anthropocentric religion in the world as it “not only established a dualism of man and nature but also insisted that it is God’s will that man exploit nature for



his proper ends” (White, 1967, p. 1205). This dualism concept contradicts animism and eastern religions which view deity and nature as one with each other. White asserts that Christianity created separation between man and nature and as a result, man becomes superior to nature and displays arrogant attitude towards it. In other words, it is viewed that humankind is the pinnacle of God’s creation and is clearly distinguished from the rest of nature because they are created in God’s own image. White claims that God sanctions man’s mandate for resource exploitation for centuries and this has resulted in ecological damage.

Eckberg and Blocker (1989) have conducted a research to determine whether the acceptance of the Judaeo-Christian scripture’s sacredness impacts the environmental attitudes of human race. They establish that their project, which was subsequently published, appears closely to have a link with White’s original thesis which is in contention in the academic fields. They employed twelve key items to measure concern with environmental issues in this research. At the end, their findings revealed that White’s thesis received a substantial support within the limits of their data. They consequently concluded that “Genesis 1 ‘disenchanted’ nature, which then became meaningful only in terms of its use by people. Therefore, the development of science/technology and the destruction of nature has a peculiarly Occidental - specifically a Christian – feature” (Eckberg & Blocker, 1989, p. 509).

However, a class of scholars claim that the narrative in Genesis 1 means something different from White’s interpretation and, more so, later chapters in Genesis present a “stewardship” orientation towards nature. Meanwhile, Gerald I. Gardner and Paul C. Stern have observed that empirical research on this issue

remains likewise separated and unsettled (Gardner & Stern, 1996). In line with this, the researcher reasons with Anders Biel and Andreas Nilsson that the conflicting views arise because there is no clearly emphasised causal connections between religious values and environmental concerns and behaviour created in any part of the Bible (Biel & Nilsson, 2005).

c) **Christianity's response to the blame of environmental exploitation**

Lynn White's hegemonic indictment of Christianity as the most anthropocentric religion in the world and, also it is to be blamed for the cause of contemporary ecological crisis which has persisted for decades has been fiercely contested. R. Kent Hughes has noted that some interpreters in their attempt to delve into the meaning of the text, have circumvented its apparent meaning (Hughes, 1999). Bolak (2016) wonders why Christianity would "change human views of nature and how could it allow the mistreatment of nature on so many occasions?"

Many scholars have since disagreed with White's assertion and have consequently written series of responses to debunk it. Over here, a few works of such scholars have been examined. Arne Naess (1989) and Elspeth Whitney (1993) do not merely rebut this indictment against Christianity, but move a step further to indicate that the Judaeo-Christian religion contribute to pro-environmental behaviour. Unlike Biel & Nilsson (2005) whose study was not a direct test of White's thesis; Whitney, for instance in a paper, interrogates White's understanding of history on both interpretative and factual bases and proceeds to claim that religious values have significant links with the political, economic, and social situations that sustain them. He concludes that "medieval religious values were more complex than White suggests: rather than causing

technological innovation, they more likely provided a justification for other activity taking place for other reasons” (Whitney, 1993, p. 151).

On his part, Ronald G. Shaiko (1987) has undertaken a study to find out if religious differences among Protestants, Catholics, and Jews are apparent on attitudes towards dominance over nature. His findings reveal that it is more plausible that these religious bodies are to have some level of mastery orientation towards nature compared with non-Judaeo-Christians. However, Shaiko concludes that details of his findings do not have sufficient grounds to confirm White’s thesis; hence, mastery over nature cannot be the cause of humans’ mistreatment or less concern of the environment. These religious groups may rather have stewardship orientation which is pro-environmental.

Another study which has been conducted to test White’s hypothesis is the work done by Paul A. Djupe and Patrick Kieran Hunt (2009). The study which has since been published has two-fold goals, “to revisit the validity of Lynn White's famous thesis as well as add a new perspective to this literature” (Djupe & Hunt, 2009, p.681). Like in Shaiko’s (1987) study, White’s thesis receives a fractional support on a number of fronts in this study as well. It is not so strange that respondents of this project overwhelmingly pronounce pro-environmental position as the clergy form a substantial part, and also their response favour environmental care and that religious beliefs per their view have minimal to no effect when social communication is measured.

The outcome of the results is that “a Christian worldview is not incompatible with holding pro-environmental views” (Djupe & Hunt, p.681). They therefore posit that it is unfounded to have explanations in the literature that depend extensively on religious beliefs. In their view, for one to have

knowledge of whether someone holds dominion or stewardship beliefs alone is not enough. What is rather more important is for one to know why adherents hold those beliefs since the various ways to holding an opinion prescribe diverse persuasion approaches. They concede that among other things, certain questions need to be asked for further clarification amongst which is, “Should elites communicate with the goal of reshaping beliefs about the meaning of religious texts or can they speak directly about the nature of environmental problems?” (Djupe & Hunt, p.682).

In 1993, Bernadette C. Hayes and Manussos Marangudakis finished their personal analysis of a study conducted by the International Social Survey Programme. This elaborative project has been described as the first cross-national study on religion and ecology as data for this research were collected from the United States, Canada, Great Britain, and New Zealand (Bolak, 2016). Whereas Shaiko’s (1987) research focuses on Protestants, Catholics and Jews, the scope of this study covers Liberal Protestants, Other Protestants, Catholics, Non-Christians, and Independent religious groups. The main findings of the study focus on contemporary ecological crisis, factors to promote or hamper the situation, and beliefs or perspective of the environment.

From their analysis, it is observed that “no uniform or direct link between adherence to a Christian belief and an anti-environmental stance either in terms of attitudes or behavior” (Hayes & Marangudakis, 2000, p. 7). Although, findings from the project cannot provide a sufficient ground to rebut White’s assertions as they do not respond directly to his hypothesis; nonetheless, the outcome of the study does not actually validate his argument either. It comes to light in the study that no basis is established regarding the

link between Christianity and negative attitudes nature or less environmental concern in any of the countries where the research is carried out. Aside this, the study also shows that no concrete distinction can be drawn between Christians and non-Christians' attitude towards the environment for which reason Christians can be blamed for current ecological crisis. On this basis, Hayes and

Marangudakis (2000) opine that White's accusation is factually inaccurate since there is no correlation between Judaeo-Christian tradition and anti-environmentalism.

Another scholar who has reacted to White's widespread article is Desmond A. Gillmor (1996) in an article entitled *The Ecological Crisis and Judaeo-Christian Religion*. In his reading, White interprets the word "dominion" in the Bible to indicate domination or supremacy as discussed earlier. White, however, fails to justify the historical meaning of this word and this even can flaw his argument. Meanwhile, Gillmor explains that "dominion implied kingship and in the Bible this was often linked with responsibilities to subjects rather than tyrannical despotism" (Gillmor, p. 263). He points out further that what quickly comes to mind today when the word dominion is mentioned is ultimate authority or supremacy, but the word as used in the Bible has a completely different meaning. Contrary to White's interpretation, Bolak (2016) suggests that God instructing humankind to exercise dominion over the earth could mean for human beings to inspect, care for and protect it. God gives this responsibility to humans, probably, as Arne Naess observes that "humankind is the first species on earth with the intellectual capacity ... and live in an enduring, dynamic equilibrium with other forms of life" (Naess, 1989, p. 23). He emphasises further that human beings are capable of perceiving and

caring for the variety of lifeforms in their environment, a responsibility that no non-human creature can perform.

Furthermore, one can refute White's argument only when he comes to terms with the historical context in which the book of Genesis was written; something which White loses sight of. According to Gillmor (1996), to understand this, one needs to carefully examine the period in which the Bible was compiled, particularly the exact text under consideration, and the contextual milieu of its words. Bolak (2016) posits that at God's creation of man and the earth was a ferocious environment and for this reason, one has to consider the condition of the background within which God instructs humans to exercise "dominion" over and "subdue" the earth. So, to interpret the words 'dominion' and 'subdue' in the context of the text in Genesis today to connote a negative attitude and for that matter an exploitation of the environment is inaccurate and erroneous. It is obvious that White errs for interpreting these words to mean humans' mastery over nature and its consequence exploitation of the environment.

Along with Gillmor, Richard H. Hiers in an article entitled *Ecology, Biblical Theology, and Methodology: Biblical Perspectives on the Environment* challenges (1984) Lynn White's thesis. According to Hiers, White is justifiable when he opines that human attitudes and views are potential to shape our environmental orientation; however, Hiers disagrees with White that Christianity destructively influences humans' opinions. He rubbishes White's thesis and believes that the thesis has received a widespread reference since people "find it convenient to blame religion when things go wrong in the world" (Hiers, 1984, p. 44). Upon a careful examination of White's thesis, Hiers points

out that “like other critically illiterate readers before him, White blurs together the P and J creation stories, thereby obscuring and omitting significant elements” (Hiers, p. 45). The P and J stories mentioned by Hiers are theoretical frameworks employed by biblical authors to narrate distinct stories in Genesis.

It is noteworthy that the J source of creation story reveals humans and other creatures being created with a common material – from the dust of the ground. Since God created both human and non-human creatures in an identical manner, so both are cherished by him equally. Although, some scholars object to this view; but Hiers affirms it and postulates that the creation of both humans and other living things in a similar way fosters a co-creature relationship between these categories of creatures as they live in harmony with one another in the biosphere. It is unjustifiable to accept that human beings who have enjoyed cordial relationship with nature can be mandated today to turn and exploit it. In line with this, Hiers has taken the argument concerning the controversy over the word dominion in Genesis to another level. He argues that if human beings have dominion, then there is a higher dominion, which is God, and he is in charge of the care and sustenance of both humans and creation. This presupposes that since God alone has an absolute control of nature, humankind have no established dominion over any of God’s creations. At the end of his analysis of White’s essay, Hiers claims that in White’s use of creation stories in his argument, he joins different pieces of creation stories from one another and more so out of context. He concludes that this act of White affects the content of the Bible and thereby twisting the meaning of the text.

In conclusion, the numerous opposing examples pertaining to this argument suggests that scholars have contrasting views on the text in question; and its real meaning cannot be settled for now unless the interpretation of it is placed in its proper context. While a respectable number of scholars still hold on to the view that the Judaeo-Christian religions are to blame for current ecological crisis because of the biblical reference to man to have dominion over the rest of nature, there are equally a substantial number of thinkers who vehemently refute this claim. Contrary to White's assertions, the latter class of scholars insist that Christianity rather endorses caring for and protecting nature. It is, therefore, suggested that "a conscious change of attitude towards the conditions of life in the ecosphere presupposes that we associate ourselves with philosophical position in all essential problems of decision-making" (Naess, 1989, p. 38).

**d) The theological and ethical challenge of the ecological crisis**

Scholars, theologians, ethicists and ecologists alike perceive theological insufficiency and ethical weakness as underpinning the contemporary ecological crisis. This stems from the fact that their writings and arguments on ecological crisis more or less touch on the insufficiency of theological and ethical emphases as a major factor contributing to our current ecological crisis.

J. O. Y. Mante (*Africa: Theological and philosophical roots of our ecological crisis*, 2004) attempts to establish a point that African Christian Theology (popularly called African Theology), like other Western Theologies, does not consider ecological issues a serious matter of concern in its theological construction. He posits that what has dominated in this African Theology are the concepts of Inculturation, Indigenization, Adaptation, and



Contextualization. Mante expresses surprise at how most African theologians have consciously or unconsciously inherited Western theological ontology which has greatly influenced their theological methodologies and constructions. This pursued orientation has blocked their minds on ecological issues as something worthy of attention in any theological engagement.

For Mante, at least, two main reasons why African theologians cannot overlook serious issues of the entire biosphere in African theological construction are evident. On the one hand, the non-human environment occupies a major portion of both the life and thought of the majority of Africans. It is pointed out that the non-human environment presents some symbolic thoughts as well as philosophical worldviews among many Africans. On the other hand, the recent exploitation of the eco-system coupled with its associated consequences, such as myriads of death through starvation, are enough evidence to merit serious theological consideration.

Mante's characterizing of African Theology as "ecologically bankrupt" because it does not treat environmental issues as something significant to the Africans is too strong a description. However, it is unthinkable why most African theologians are preoccupied with making the Christian message more appealing to traditional Africans in their traditional situations at the expense of stressing the need to protect and care for the environment.

It is obvious that Mante's work echoes the call for intensified eco-theology as an appropriate approach for addressing ecological issues. Writing with an argument that ecological issues are so dear to the indigenous Africans since it is an essential issue in their thought-forms and also a leading cause of many deaths through starvation, Mante insists that African Theology cannot be

an indigenous if it fails to encapsulate such an important issue. In effect, the neglect of ecological issues in African theological construction renders that theology non-indigenous and alien. Mante further articulates that, even if it were perceived that ecological issues were not indigenous to Africa, African theologians ought to have given the matter a significant place in their theological constructions since it is a major contributing factor to the deaths of thousands of people.

Unlike several other Western theologies which give little or no attention to ecological issues in their engagements, Mante notes that two major theologies in the contemporary Western tradition have positively heeded the call for concern for the western ecological crisis. These are the *cosmocentric mysticism* of Matthew Fox, and the *Process theologies* based on the philosophies of such scholars as Alfred North Whitehead, Charles Hartshorne, and Henri Bergson. In the same vein, Mante, who seems not to fairly look at the angle from which these scholars construct their theologies, claims that Paul Tillich, a modern western theologian, is among a few whose theological works mainly focus on ecological issues.

It is obvious that Mante's ecological evaluation of the theological works of thinkers such as Albrecht Ritschl, Adolf Harnack, Karl Barth, and Emil Bruner was, more or less, choose and pick, which informed his conclusion that the borrowed Western Tradition by African Theology was inadequate for solving ecological crisis. In contrast to his view, recent scholarship clearly indicates that modern theological constructions consider ecological issues something more relevant today than ever. This is justified in the next chapter of this study.

In the end, Mante suggests a varied approach for doing theology among African theologians. This new approach must have a heart to take on board serious issues such as ecology, aside inculturation issues dominating in African theologies. The day of a one-way approach to doing theology in Africa is over, giving way to the application of “varied theological methodologies.”

On his part, Willis Jenkins (*After Lynn White: Religious ethics and environmental problems*, 2009) evaluates White’s legacy and makes propositions embedded with a pluralistic alternative which is pivoted on religious ethics based on contextual approaches that can be employed to deal with environmental problems. He argues that the aftermath of Lynn White’s indictment of Christianity that the root cause of ecological crisis hinges on religious cosmology has gone far to finetune the contemporary studies on disciplines of ecology, theology and environmental ethics. This proposed broad based approach to doing theology complements the opinion emphasized by Mante, except that his discussion targets specifically African theologies.

According to Jenkins, White’s indictment of the Western worldview which has since generated a huge debate has enhanced and, at the same time, shaped the development of Christian environmental theologies despite its vehement rejection by some ecotheologians and environmental pragmatists such as Ben A. Minteer and Robert E. Manning (2005), and Bryan G. Norton (2015). This is clearly articulated by Elspeth Whitney as he notes:

Paradoxically, although many ecotheologians argued vociferously against White, they could use his thesis to reinforce the view that environmentalism was at bottom of a religious and ethical movement. Like White, they believed

that religious values were the most effective antidote  
(Whitney, 2005, p. 1736).

Ever since White's thesis gained popularity, there has been a paradigm shift from less ecological oriented theologies to more Christian ecological orientation in theological discussions. Per his assessment, Western Christianity's cosmology masterminded Europeans to perceive themselves as distinct from other forms of creation. For them, it is all about pursuit of solely salvific destiny and nothing else. This therefore exposes clearly the environmental challenge which instigates a serious theological reorientation of recovering an ecological worldview hinged on nature's value rather than human transcendence.

Jenkins therefore opines that Christianity is particularly susceptible to issues regarding White's methodological legacy due to the linkage between Christian ethics and environmental problems. Since this indictment is the central issue of his critique, Christian environmental ethics have been poised to respond to White, and will subsequently raise wide-ranging challenges to religious ethics emanating from further criticism of White's legacy.

In his conclusion, Jenkins contended that there exists a fertile gap between environmental problems and moral traditions, and ethicists should not try to close the gap. However, they should explore several strategies to enhance its productive viability.

Dieter T. Hessel and Rosemary Radford Ruether (2000) in their essay titled *Introduction: Current thought on Christianity and ecology* examine the contribution of Christian ecotheology and ethics to the fight against destruction of the earth community and promotion of its well-being in this era of

environmental crisis. They advocate for collective human effort to care for the earth not only as God's creation, but also as life's home; and at the same time seeking justice for all the biodiverse life-forms.

Their work highlights the major outcome of a conference on Christianity and ecology, organized by the Harvard University Center for the study of World Religions in 1998 at the American Academy of Arts and Sciences in Cambridge, Massachusetts. In all, about eighty leading Christian scholars and a few concerned observers attended. Essays presented at the conference were to cover the following three outlined distinct, but complementing, issues: first, "to explore problematic themes that contribute to ecological neglect or abuse and/or suppressed elements in the traditions that can make a positive contribution to ecological-social healing"; second, "to discuss new emphases needed in Christian theology or ethics"; and third, "to identify praxis implications for church and society".

Hessel and Ruether anticipate that the contributions or write-ups will expand and deepen the religious thoughts of churches and Christians' understanding and responsiveness to ecotheological and ethical issues. They are of the view that ecotheology and ethical issues have not yet gained deeper roots in Christian reflections; and for that matter, the contributions of some key Christian scholars in their work will go a long way to illustrate a comprehensive discussion of the responsive role of the Christian tradition. Meanwhile, it is maintained that "our generation is taking environmental responsibility more seriously than our immediate predecessors did.... There have been a number of encouragements in recent years (Stott, 1999, pp. 139-140).

It is worth noting, as indicated by Hessel and Ruether, that Christians' environmental consciousness was not triggered by Lynn White's famous indictment, even though its remarkable influence in theological-ecological constructions for the past four or five decades cannot be overemphasized. The development of ecotheology concept originated from North America in 1963 through the *Faith-Man-Nature Group* led by Philip Joranson, and was supported by the National Council of Churches. It has come to light that this initiative was inspired by pioneering scholars, such as Joseph Sittler who delivered an address to the World Council of Churches in 1961 and proposed earthly Christology and greater emphasis on cosmic redemption. It is further noted here that the initial rise of environmental theology also had the influence of some prophetic nature thinkers such as Rachael Carson (1995).

Hessel and Ruether maintain that the idea of environmental theology began with a small number of Christian thinkers. This group was later joined by a larger number, and lately Lynn White and a host of other environmental philosophers emerged, raising controversial assumptions pertaining to contemporary philosophical and theological discussions. They observe that the issues being raised in the 1960s by philosophers and scientists on the global environmental problem of the day, and the ecological reflections in the Christian theological constructions were unmatched. This suggests that Christian theology did not either address or aim at addressing the ecological problem of the day. The view of Hessel and Ruether that theologians and religious ethicists are the right people to assess the positive and negative impacts of the biblical and Christian traditions on the ecological crisis is contestable. Meanwhile, these

thinkers' position that the ecological challenge provokes biblical exegesis clearly holds.

By way of summary, it is claimed that "Christian theology has rediscovered that all of the earth community is valuable to God, who continues to create, sustain, and redeem the whole" (Hessel and Ruether, 2000, p. xxxv).

The part of this claim which states that God continues to create conflicts with J. Rodman Williams's (1996) view. According to him, creation is claimed by Christian theology to be a completed work of God. He further argues that the bible states, "In the beginning, God created," and the word "created" denotes completion of something. But the creation took place within a particular time frame, and not that everything was brought into existence at once (Williams, 1996).

Furthermore, proper development of ecotheology underscores the complex interaction relating to cosmology, spirituality, and morality. It is posited that Christian worldview, God's relation to the world, and the activities of humankind are fundamental to prompt humankind to reconsider ecological issues seriously. It is evident that the plight of both the earth and human species which suffer terrible exploitation are seen together in eco-justice theology.

On her part, Gloria J. Thurmond (2007), a Senior Faculty Associate of Music at the College of Communication and the Arts of Seaton Hall University, in her article which won her the Provost's Award of the University in 2007 also examines the moral challenge of the ecological crisis. In that article titled *Ecology and Mary: An ecological theology of Mary as the new Eve in response to the church's challenge for a faith-based education in ecological*

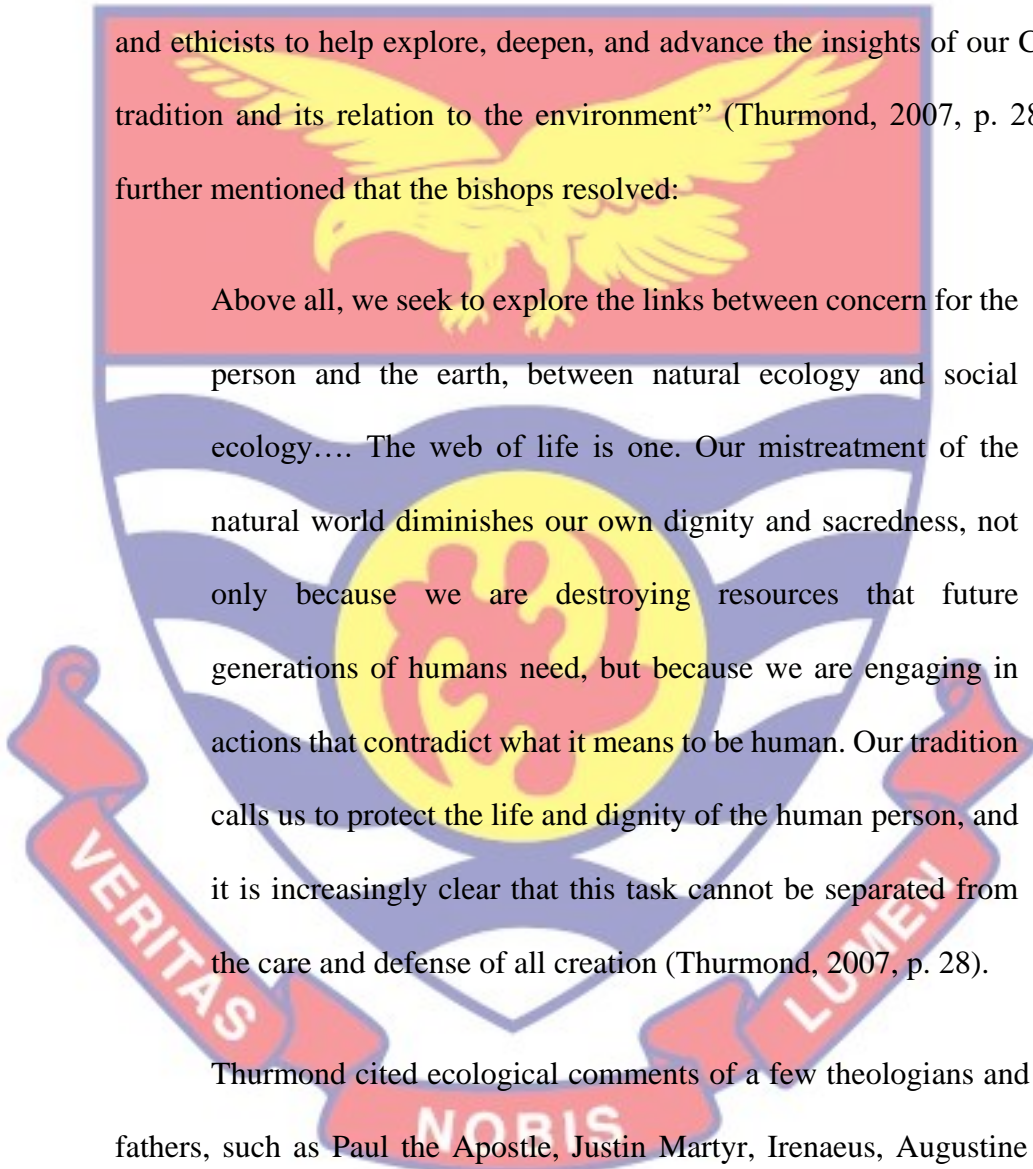
*responsibility*, Thurmond argues that the Church has interpreted the modern ecological crisis as a moral crisis.

Pursuant of this view, she sketches a new approach for ecological dialogue and education which is purely influenced by Roman Catholic doctrine and tradition. Her argument that the current ecological crisis is a moral issue is based on an exploration and reinterpretation of the Roman Catholic's traditional doctrine of the Virgin Mary underpinned by her newly constructed ecological theology of Mary. This approach had similarly been pursued earlier by her counterpart, Rosemary R. Ruether, who designed "an eco-feminist reconstruction of Christian belief about the self, soul/body relations, finitude, evil, redemption, God, Christ, and revelation" (Hessel & Ruether, 2000, p. xli).

Thurmond suggests that scholars in the second century Church analyzed and interpreted the doctrine of Mary as the new Eve, and their assumptions are to be presented and reinterpreted to provide a panacea for nurturing ecological awareness and responsibility in the contemporary Church. This new approach of ecological Marian theology was emphasized by Pope Paul VI in his 1974 Pastoral Letter, *Marialis Cultus* (To Honor Mary). Heather Eaton (as cited in Hessel & Ruether, 2000) who overwhelmingly favours this kind of approach, in reaction to Ruether, stresses the significance of the transition from finitude and mortality and questioning the bases of domination in Christian theology. Eaton then sketches a framework geared towards a new theological orientation which can eventually become *woman-and nature-friendly*.



Apart from Papal and episcopal statements that call for a moral concern to promote awareness and involvement, the Catholic Church's leadership has demonstrated their commitment to the concern of growing urgency of the ecological crisis. Significantly, it is narrated that the National Conference of Catholic Bishops (NCCB) in 1998 entreated "theologians, scripture scholars, and ethicists to help explore, deepen, and advance the insights of our Catholic tradition and its relation to the environment" (Thurmond, 2007, p. 28). It is further mentioned that the bishops resolved:



Above all, we seek to explore the links between concern for the person and the earth, between natural ecology and social ecology.... The web of life is one. Our mistreatment of the natural world diminishes our own dignity and sacredness, not only because we are destroying resources that future generations of humans need, but because we are engaging in actions that contradict what it means to be human. Our tradition calls us to protect the life and dignity of the human person, and it is increasingly clear that this task cannot be separated from the care and defense of all creation (Thurmond, 2007, p. 28).

Thurmond cited ecological comments of a few theologians and church fathers, such as Paul the Apostle, Justin Martyr, Irenaeus, Augustine and so forth, to support her argument and calls for a new methodology for examining the ethical and moral dimensions of the global ecological crisis.

In conclusion, Thurmond's critical assessment of the ecological crisis reveals that the matter is a moral dilemma confronting the church leadership today; and an appropriate model for its redress by the third millennial Christian community is an ecologically reconstructed new Eve model. Though it is contested by some scholars, this model facilitates connection and relationship, teaches and nurtures ecological awareness and concern towards all life-forms in the biosphere; and it has the potency to invigorate Marian connection and commitment as opined by Thurmond.

e) **Human-nature relationship**

This sub-topic examines the kind of relationship that exists between humans and creation or nature, particularly, with reference to the kind of attitude human beings exhibit towards the environment and creation at large. John Drane's (1993) statement sets the tone for this discussion here. He observes that "humankind is created from the dust of the earth, emphasizing that people are directly related to the environment, and in spite of their perceived status, are themselves an intrinsic part of nature" (Drane, 1993, p. 8). He assumes that human-nature relationship dates back to the creation stories, particularly in Genesis 2 where God asked Adam to take care of the Garden of Eden in which he lived. Similar to the view of Francis of Assisi, Drane suggests that God created the animals to provide companionship for man (Genesis 2:18 ff.), and this communicates an inter-dependent relationship between Adam and nature. Drane, however, admits that their relationship does not connote equality. For him, so long as Adam was given the right to name the creatures presupposes some level of control over or responsibility for them. As clearly indicated in Genesis 1, man was given the right of control because God intended humankind

to be in his “image” and “likeness” and to “have dominion over” all the creatures.

Stott (1999), like Drane (1993) and other Christian thinkers, maintains that man’s unique dominion over nature is underpinned by his unique relationship with God. He states that in God’s creation, he has set an order of hierarchy. In this hierarchy, God has purposefully placed “human beings midway between himself as Creator and the rest of the creation, animate and inanimate” (Stott, 1999, p. 131). Human beings are viewed to have a dual creature status. In one sense, they are seen to be identical with the rest of nature because they share a common status with all other creatures. In another sense, human beings are distinct from nature because they are created in the image of God and have been given dominion over nature. It is further stressed that human beings are identical with nature because, like animals, they breathe (Genesis 1:21, 24; 2: 7), eat (1: 29-30) and reproduce (Genesis 1: 22, 28) just like some other non-human creatures. On the contrary, human beings are not like the animals but rather like God because they are rational beings capable of thinking, choosing, creating, loving, praying and exercising dominion (Stott).

In his March 2015 memoir, Pope Francis draws reference from the Bible to establish that human beings have a good relationship with nature. He cites some specific examples whereby humankind help animals and also how they observe ‘sabbath for animals’ as do humans to advance his argument. Pope Francis insists that God admires his creation and cares for it as J. Rodman Williams (1996) similarly points out. According to Williams, the same God who brought creation into existence is the same One who provides care for His creation. He further explains that the providence of God indicates that “God is

intimately concerned with His creation” (Williams, 1996, p. 117). Pope Francis, therefore, opines that there is no way humans can hate and mistreat creation which God values and respects.

As a reverence for God in this respect, humankind need to be kind to nature and treat it well. And contrary to the perception that the Bible approves of humans’ abuse of nature, Pope Francis, like the view of Christian theology, maintains that God is both the Creator and Owner of the earth and by extension the entire universe. God does not tolerate exploitation of his creation whatsoever. The control of creation is in the hands of the Creator himself; so only those who fail to recognize this fact assume dominance over nature and abuse or exploit it. To him, there are no grounds for rational humankind to harm nature just because they see themselves as superior to it.

Unlike some Middle Ages theologians such as Thomas Aquinas who believes that animals exist solely for human pleasure and benefit, St. Francis of Assisi views “them as his equals, his brothers and sisters” (Stott, 1999, p. 136). In a unique manner, he celebrates the value and beauty animals carry in creation. Pope Francis like Assisi, believes that all human beings are called to be protectors of creation including animals. According to Lauren Carrol and Rebekah Kates Lemke, Pope Francis (2013, March) emphasizing this point in a homily remarked that “protecting all creation, the beauty of the created world, as the Book of Genesis tells us and as Saint Francis of Assisi showed us. It means respecting each of God’s creatures and respecting the environment in which we live” (Carrol & Lemke, 2017). It is also read of Jeremy Bentham who at the end of the eighteenth century intimated that animals have rights because they are sensitive beings that respond to pain when hurt.

Another great thinker and influential philosopher who has stressed this argument further in quite recent time is Peter Singer, professor of bioethics at Princeton University and laureate professor at the Centre for Applied Philosophy and Public Ethics at the University of Melbourne. He granted a controversial interview to Julia Taylor Kennedy on October 6, 2011 at the Carnegie Council for Ethics in International Affairs. In that interview, which was later published by Jennie Richards, Singer argues that though some level of differences exists between human and non-human animals, yet there is no justification for subjecting animals to subordinate status so that we can treat them for food and other uses. He emphasises further that the practice of humans' speciesism and prejudice motivates humankind to regard themselves superior to animals, and just because they are human, they have right to "use them as a means to an end" (Richards, 2016).

Nonetheless, it is indicated that there is no philosophical basis that suggests to humans that animals are just 'things' that can be treated anyhow. They are equally sentient creatures which can suffer and feel pain just as human beings do. Singer opines that humans and animals alike share significant equality in the capacity to suffer or to enjoy their lives. In his view, this amounts to moral equality and as a result their pain ought not to be ignored or discounted just like the case of human beings. He insists that equal consideration should be given to all creature beings so long as they have interests and can feel pain no matter the nature or kind of species they are, just as all human beings are equal in terms of sex, race or skin colour. He concludes his argument with an opinion that the assumption that "the human animal", as he calls them, allot to

themselves as having right to rule “over other animals” is “now obsolete” (Richards, 2016).

On his part, McHarg (1969) states that the major source of our moral attitudes is attributed to the western religions that emerged from monotheism. He points out that the fixated assumption of the uniqueness of man, with justice

and compassion has been influenced by these faith groups. On the subject of man-nature relationship, McHarg notes that humans have negative tendencies towards nature which are motivated by the biblical creation story of the first chapter of Genesis. He believes there is a marred relationship between humans and creation, and that it is this biblical story which incites humankind to exploit and destroy nature. Humans’ activities such as the rising use of radioactivity, construction of canals and harbours with offensive weapons, and use of poisonous substances without any restrictions, undoubtedly, have serious repercussions on the environment. McHarg, in brief, insists that humans have the consent “to conquer nature – the enemy, the threat to Jehovah” (McHarg, 1969, p. 26).

In brief, thinkers are here divided also on views pertaining to human-nature relationship. There is therefore the need for a strong advocacy to establish a common ground to promote a healthy relationship between humankind and nature.

#### f) Conclusion

To conclude, the discourse is more complex and concerns the interpretation of the Bible. In the last few decades, a new brand of hermeneutics has developed analyzing the relationship between biblical interpretation and ecology.

Meanwhile, the state of current global ecological crisis and some key environmental problems of today, and their effects on the biophysical world are discussed at the next chapter.

### **Organisation of the Study**

This work has five chapters. Chapter one forms the introduction which comprises the background to the study, statement of the problem, purpose of the study, the objectives of the study, research questions, significance of the study, the methodology which looks at the approach or techniques employed for dealing with the topic in question, the literature review of the study where certain selected books and scholarly articles related to this research topic are reviewed around four thematic areas, and organisation of the study. Chapter two explores the state of global environmental crisis today, and some key environmental problems and their effects. Chapter three deals with interpretation of the text (Genesis 1:26-28) under which general background to the creation story, the story under study, and interpretation and analysis of the text under study are treated. Chapter four outlines some suggested causes of current global ecological crisis, and some proposed solutions to the crisis. The chapter also contains some major interventions by countries and institutions to remedy the situation. Chapter five forms the conclusion of the research work which contains summary of the findings in the textual investigation and analysis, my view point on the indictment that the text under investigation warrants exploitation of the environment, and some suggestions or recommendations for further research project.

## CHAPTER TWO

### THE STATE OF THE GLOBAL ENVIRONMENTAL CRISIS TODAY

#### Introduction

The previous chapter dealt mainly with the general introduction to the study, the methodology, and the review work of some scholars in the area under study. The review focused on four themes, namely, the Judaeo-Christian tradition and the root cause of ecological crisis, Christianity's response to the blame of environmental exploitation, theological and ethical challenge of the ecological crisis, and human-nature relationship. Subsequently, this chapter briefly outlines what is happening in the environmental world. Also, it elucidates the meaning of ecological crisis, and further explores the current state of global environmental or ecological crisis as has been identified by scholars. Furthermore, the chapter explores key global environmental problems of today, and the effects of the environmental crisis on the biophysical world.

#### What is happening?

It is not out of place, as a matter of concern, to understand, like Osmer (2008) inquires, what is going on and why is it going on. The reality of centuries of neglect of environmental concern leading to the current state of the ecological crisis has now caught the attention of numerous theologians, ethicists, ecologists and other environmental activists. Commenting on the environmental challenge of our time, Dieter T. Hessel and Rosemary Radford Ruether posit that “the world gets hotter, stormier, more unequal, crowded, violent, and less biodiverse” (Hessel and Ruether, 2000, pp. xxxiii); and think that there is the need for an interaction to stop it from becoming a crisis.



According to an examination and analysis of the global environment published in 1999, the UNEP *Global Environment Outlook* report (UNEP 1999), citing the view of many distinguished scholars, the world is now facing an environmental crisis. It is a reality, as also highlighted by many authors, that the modern environmental crisis is unparalleled in its scale, pace and severity (Park 2001). The report affirms that since the 1970s, there has been a growing global awareness of this environmental crisis, partly due to the prominence given to the occurrence of some terrible environmental disasters such as *the Sahelian droughts* of the 1970s and 1980s and the nuclear accident at Chernobyl in 1986.

#### **Environmental or Ecological Crisis Defined**

Many textbooks and scholarly works do not often times define and explain in detail the term ecological or environmental crisis. Nonetheless, Tsui-Jung Wu defines ecological crisis as “the concrete presentation of natural disharmony and it also implies a disharmonious relationship between nature and humanity, as well as nature and God” (Wu, 2011, p. 28). Similarly, but in a more complex manner, M. Scott Taylor defines environmental crisis “as a dramatic, unexpected, and irreversible worsening of the environment leading to significant welfare losses” (Taylor, 2009, p. 1244). Taylor’s definition embraces and, at the same time, excludes several elements. Environmental crises are uniquely marked by rapid and largely unexpected variations in environmental quality that are hard if not impossible to reverse. Key extinctions of some species and substantial depletions of an ecosystem are clear examples.

Per Taylor's definition, since the change has to be theatrical and swift in its stride, the gradual reduction in species population worldwide or the slow reduction in a fish stock, for instance, does not amount to an environmental crisis. Also, in the environmental or ecological crisis the change must be unpredictable and it is deemed a low possibility occurrence. This point is further stressed that ecologists and other environmental scientists indicate that the world is in a catastrophic path, but they fail to firmly predict what will certainly happen (Naess, 1990). The element of irreversibility distinguishing environmental crisis is equally worth noting. If resources or nature quickly recuperate, then it is hard to consider how any change in the environment should merit much concern; but if recovery of degraded nature takes a century or more, things will be different (Taylor, 2009). It can, therefore, be postulated that the variation in the environment must account for a substantial welfare loss or the scale of the damage done must be enormous to warrant an environmental situation to be classified as a crisis.

It is worth noting to establish that a wide range of views exists about the nature, scale, and severity of the contemporary environmental crisis, and some of the issues are extremely contentious. However, there is a comprehensive agreement that the environmental crisis encapsulates issues such as anthropogenic climate change ('global warming'), the depletion of stratospheric ozone (the 'ozone hole'), the acidification of surface waters ('acid rain'), the destruction of tropical forests, the depletion and extinction of species, and the precipitous decline of biodiversity.

## The State of the Global Environmental Crisis Today

The incessant trend of contemporary ecological crisis has now assumed a largely global dimension in recent times more than ever before. Every corner of the globe has witnessed a one form of ecological crisis or another. In their book, *Preserving God's Creation in Christianity and Ecology*, Elizabeth Breuilly and Martin Palmer stress that it is becoming progressively clear that what has been named the ecological crisis is perhaps the number one problem facing the world-wide community of our times (Breuilly & Palmer, 1992). It is a global problem which affects all human beings irrespective of where they live or their social status. They further posit that this global crisis does not merely pose a serious problem to the well-being of humanity; but, on larger scale, it has the potency to negatively affect the very being of humankind and possibly of creation in general.

This sentiment expressed by Breuilly and Palmer is further echoed by the World Council of Churches (WCC). An extract from a communiqué issued at their Consultation Assembly in 1992 at Baixada Fluminense, Brazil, presents a picture of the nature of the ecological crisis of our time. The extract states:

The earth is in peril. Our only home is in plain jeopardy. We are at the precipice of self-destruction. For the very first time in the history of creation, certain life support systems of the planet are being destroyed by human actions.... Pollution of water, soil and air are greater than ever (Pui-Lan, 1997, pp. 119).

Also, Herbert George Wells notes that “the whole planet is now one economic community ...” (Wells, 1946). Since the planet has become one community and what happens at one part of it affects the whole, the effect of this global menace has been deep and far reaching.

This point is emphasised by Elizabeth A. Johnson in an essay she wrote in 2000 titled *Losing and finding creation in the Christian tradition*. Making an inference in that essay from certain key works that deal with scientific concepts, Johnson notes that the world is inconceivably biological. By this description, it is explained that one thing is connected with another thing else; nothing imaginable is secluded (Johnson, 2000). The point here is further exemplified by the scientist and theologian Arthur Peacocke’s analogy which states, “Every atom of iron in our blood would not be there had it not been produced in some galactic explosion ... and eventually condensed to form the iron in the crust of the earth from which we have emerged” (Peacocke, 1989, p. 32). Like Stott observes, “All life on earth is dependent on the biosphere, the narrow layer of water, soil and air in which we live” (Stott, 1999, p. 135). Humankind together with all other kinds of living creatures which belong to a common community of life on earth share the same one ancestry (Johnson, 2000).

In fact, it is vehemently opposed that “similarity in structure between humankind and primates is not proof of common ancestry; it may very well be an indication of common design (Geisler, 2003, p. 669). Meanwhile, by this commonality among all kinds of living species we are aware of only one earth as maintained by Michael Dowd (1991). It is worth noting that a new consciousness of the earth’s rapid exploitation as a result of human predation which is currently destroying the natural world has taken hold of people around

the globe. For instance, the 1990 World Day of Peace message of Pope John Paul II (as quoted by Walter E. Grazer, 2000) titled *The Ecological Crisis: A Common Responsibility*, emphasises that “in our day, there is a growing awareness that world peace is threatened not only by the arms race, regional conflicts and continued injustices among peoples and nations, but also by a lack of *due respect for nature*” (Grazer, 2000, p. 579).

Looking at the magnitude of the problem at hand vis-à-vis the wavering human interventions being exerted, Arnold Joseph Toynbee, a famous British philosopher of history, is of the view that “the present-day global set of local sovereign states is not capable of saving the biosphere from man-made pollution or of conserving the biosphere's non-replaceable natural resources” (Toynbee, 1976). From the standpoint of Elizabeth R. DeSombre (2011), critical scholars view the world's effort to address environmental issues not as progress but as perpetuation of the causal dynamics that created the problems in the first place. It is observed, for instance, that the global capitalist structure, private goods, and wealth motivate the environmental problems that the world confronts today. There has not been a globally radical policy process to focus on regularizing such activities, to minimize their detrimental impact on the environment. Scholars have appraised that the observations are almost certainly correct, but the systemic embedded policy implications are so fundamental that existing political structures would be simply incapable of addressing them (DeSombre, 2011).

The international community, undoubtedly, is aware of the critical dangers the entire cosmos faces today with respect to the extent of damage done to it. It is obvious that something is being done about the situation; but at the

same time, industrial activities spring up quickly and in increasingly globalized manner which regularly come with new harms. The irony of the situation is that the fundamental political economy that produces environmental problems still persists, even as new products and processes come to replace those perceived to be detrimental and exploitative to the environment. It is asserted that “the global environmental problems that remain to be addressed are thus likely to be even harder than those before, and even more centrally tied in to a way of life that people, and industry, are reluctant to change” (DeSombre, 2011, p. 138).

### **Key Global Environmental Problems of Today**

Global warming, depletion and destruction of the ozone layer, sharp decrease of forest cover, declining of biological diversity, acid rain pollution, land desertification, marine pollution and damage, water pollution and freshwater shortage, and toxic pollution are the most widely identified environmental problems by recent studies. In this study, I have limited myself to look at only five of these problems as identified by the 2013 report on Global Environmental Competitiveness (GEC) edited by Li Jianping et al. (2014). The issues discussed here are global warming, ozone depletion and destruction, sharp decrease of forest cover, land desertification, and declining biological diversity.

#### **a. Global Warming**

Alexandra Carpenter (2019) asserts that global warming is probably the most well-known environmental issue today. It is explained as the phenomenon of gradual temperature rise of atmosphere, soil, water and vegetative cover on earth’s surface. The term *climate change* may be used to encapsulate the

warming of the earth due to the greenhouse gases that are produced. The *greenhouse effect*, which occurs as a result of the emission of such greenhouse gases (GHG) as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), has been noted as the major cause. Much as the GHG absorbs the outward long-wave radiation emitted by Earth, it has no resistance against the inward shortwave radiation from the sun which causes temperature rise in Earth surface and the lower atmosphere and results in global warming (Jianping *et al.*, 2014).

Research has revealed that among all the GHGs, carbon dioxide alone contributes over 50% to global warming. Explaining further, Jianguo Liu and Peter H. Raven have clearly stated that climate change largely occurs due to the accumulation of some sixteen kinds of greenhouse gases in the atmosphere, with CO<sub>2</sub> being the major one of anthropogenic origin (Liu & Raven, 2010). The rapid expansion of industrialization and urbanization after the nineteenth century has given rise to faster concentration of carbon dioxide's emission into the atmosphere. According to Jianping *et al.*, there was a long period of atmospheric stabilization of carbon dioxide concentration in the atmosphere at 270-290 ppm before the advent of industrial revolution. It is realized that since the inception of Industrial Revolution, the average air temperature of the globe has increased by about 0.7 °C and is increasing at the speed of 0.2<sup>0</sup>C every 10 years. It is further revealed that in 2007, Intergovernmental Panel on Climate Change (IPCC) issued their fourth assessment report dubbed *AR4*. This report pointed out that the measurement fraction of CO<sub>2</sub> which was 379 ppm in the year 2005, had extremely gone beyond the scope of spontaneous change in the past 650,000 years (Jianping *et al.*, 2014).

Similarly, the World Meteorological Organization (WMO) issued an annual Greenhouse Gas Bulletin in 2011. In that bulletin, an indication was given that there was abundance of greenhouse gas in global atmosphere in 2010 which was still escalating in industrialized era. This point typifies what has been raised sometime ago by Satvinder Juss. According to Juss, the United Kingdom has experienced several periods of warmer than average temperatures in recent years (Juss, 1997). He states that the UK published their first report on climate change in 1991 which indicated that from 1985-1994, the average global atmospheric carbon dioxide concentration increased by about 5% in UK. In 1996, this report was reviewed. The review created scenarios that approximated the effects that changing climate and sea level would have on the UK in the decades of 2020 and 2050 if no major global policy interventions of reducing GHG emissions were enacted (Juss, 1997).

Jianping et al. (2014) GEC report presents a table (displayed below) produced by the WMO which reflects the general situation of global greenhouse gases concentration and the trends of change in the last decade:

**Table 1: Global greenhouse gas concentration 2010 and WHO-GAW global greenhouse gas trend**

	CO <sub>2</sub> (ppm)	CH <sub>4</sub> (ppb)	N <sub>2</sub> O (ppb)
Global abundance in 2010	389.0	1,808	323.2
2010 abundance in relative to year 1750	139 %	258 %	120 %
2009–2010 absolute increase	2.3	5	0.7
2009–2010 relative increase	0.59 %	0.28 %	0.25 %
Mean annual absolute increase during last 10 years	2.00	2.7	0.77

Source: WMO greenhouse gas bulletin 2010

Note: The figures for pre-industrialization are: 280 ppm for CO<sub>2</sub>, 700 ppb for CH<sub>4</sub> and 270 ppb for N<sub>2</sub>O



## b. Ozone Layer Depletion and Destruction

According to Puja Mondal, Ozone is “a form of oxygen, which is away from the earth’s surface at a height of about 20 to 30 km in the atmosphere” (Mondal, 2018). It is scattered in the stratosphere in the form of a layer with thickness of about three millimeters. This layer works as a shield to protect the earth against the direct ultraviolet (UV) radiation that emanates from the sun.

Ozone depletion and destruction is caused by ozone-depleting substances, mainly chlorofluorocarbons (CFCs). Ozone layer can absorb over 99 % of the UV ray from solar radiation and thus protect the lives on earth from UV injury as a natural “umbrella” of earth.

Scientists have discovered that near the earth’s surface, ozone is an increasingly worrying pollutant but it is at same time as important to life as oxygen itself. It is established that the disappearance of this layer or its damage spares doom for all terrestrial life and other non-terrestrial living species. Sensing the looming danger of the thinning and depletion of the ozone layer, this environmental problem has attracted global concern during the last few years.

This problem has come about as a result of several chemical pollutants released into the atmosphere by industries and produced through other chemical reactions. The major cause of the ozone depletion is generally attributed to the chlorofluorocarbons (CFCs) which are largely produced by highly industrialized advanced countries. However, it is worth noting that the CFCs are a source of energy which is needed in most modern life.

According to the GEC report, the ozone layer has, since 1950s, displayed trend of concentration reduction found during observation and research. It is on record that in 1974, Professor Rowland and Dr. Molina from the University of California in USA published their paper “Chlorofluorocarbons in Environment” and succinctly established the causal relation between CFCs emission and ozone depletion (Jianping *et al.*, 2014). For some few decades now, many scientists, mostly from Europe and America, have found the “ozone hole” over the oceans. It is evident that with the full disclosure of ozone sounding and further discoveries in scientific research, the phenomena of ozone layer depletion and destruction have become a global concern.

The US Environmental Protection Agency (USEPA) has forecasted that if no restrictions are put on CFCs emission then:

by 2075 stratospheric ozone will decrease by 40% compared with 1985. In that case, there will be 150 million of skin cancer patients, 18 million of cataract patients, 7.5% of crop harvest decrease, 25% of aquatic product loss and decline of human immunologic function, which will bring about tremendous hazards. As ODS is very stabilized that can live as long as 50–100 years, even if the globe absolutely stopped any emission of ODS, it would take rather long time to see any restoration phenomena on ozone layer (Jianping *et al.*, 2014, pp. 5).

The picture of the current situation of the ozone depletion is scarier than ever. After the 2010 United Nation’s (UN) Scientific Assessment of Ozone Depletion which indicated that Earth’s atmospheric ozone layer had stopped depletion and would gradually recover, recent discoveries have proved

otherwise. According to some new investigations, observational data disclosed that “from the actual indicators like ozone hole area, depth and time lapse, the atmospheric ozone depletion over Antarctic is still severe” (Jianping *et al.*, 2014). The discovery further disclosed that since 2000 the ozone hole over Antarctic has continued at a fast rate of depletion in large area and the ozone hole area has exceeded 25 million square kilometers in 2003, 2006 and 2008. However, it is said that the size of ozone hole over Antarctic in 2009 was still at the level of the last few years. The report concluded that since the ozone depletion over Antarctic still persists, the recovery of atmospheric ozone layer continues to be a major force to be reckoned with.

With respect to the depletion of ozone layer and global warming, it has increasingly been realized that human, as well as other living species, existence is in peril unless urgent and concerted effort is geared towards checking the problem. The persisting depletion of the ozone layer has really become a major environmental concern of the world today.

### **c. Deforestation**

Another serious environmental problem of our time is the sharp decrease of forest vegetation, or in simple terms, deforestation. Deforestation is the removal of trees in an area of land for human use and purposes, for instance, the construction of farms or cities. Forest, undoubtedly, is an important ecological resource which has diverse impacts of air purification, climate adjustment, water conservation, resisting wind and stabilizing sand, biological diversity protection and promoting ecological stability.

According to Carpenter (2017), tropical rainforests specifically cover more biodiversity on the planet than any other thing one can think of, and encompass lifeforms no human has ever even perceived, let alone classified or categorized. Forests perform multiple ecological roles which affect the diverse living organisms in a variety of ways. Their crucial role of balancing the ecosystem as a result of maintaining the oxygen and carbon balance of the earth is worth noting. Forests also have economic, medical and ecological importance. They serve as a source of raw materials for construction, food and exotic fruits, medicine and home for many living organisms.

Hopefully it comes as no too much surprise to anyone that deforestation is a major problem in many areas of the world today, both in terms of preserving biodiversity and preventing climate change, because of the astonishing rates by which some countries are exploiting their forests. Carpenter (2017) estimates that the forest is being lost at a rate of about 80,000 acres per day on average.

Statistically, it is estimated that about 30% of earth's surface is covered by forests. South America, especially Brazil, West Central Africa and South-East Asia, are known to be homes to regions of dense forests (Mondal, 2018).

According to the GEC report, prior to the onset of human civilization:

the virgin forest on the globe covered two thirds of the continent, reaching 76 million km<sup>2</sup>; in the mid-nineteenth century, the covered area was 56 million km<sup>2</sup>; by the end of twentieth century, the area was reduced to 34.4 million km<sup>2</sup>, coverage falling to 27 %; and in 2003, the forest cover area was left as some 28 million km<sup>2</sup>. It is obvious that since the Industrial Revolution in the

eighteenth century, the global forest cover has been seriously damaged (Jianping, 2014, pp.5).

Some further available records indicate that during 2005-2010, the loss of forest vegetation is severe in regions like Oceania, South America and Africa. A recent report of Food and Agricultural Organization (FAO) of the UN discloses that there are 130,000 km<sup>2</sup> of forest lost or converted into land for other purposes every year between 2000-2010. It is also revealed that the decade before this period witnessed an annual loss of 160,000 km<sup>2</sup> (Jianping, 2014).

Kate Markham (2019), a PhD student in ecology, evolution, and behaviour at Boise State University, whose interest is in biodiversity conservation, uses satellites and field work in conducting research. Markham maintains that one can find examples of deforestation in far too many places today. A typical example is the Amazon Rainforest in South America. According to Markham, 20% of this forest has been lost over the last forty years; and 88% in June 2019 compared with the same month in the previous year. She further observes that apart from being a source of timber, trees are cut to make room for cattle and soy farms.



*Figure 1:* Pictorial view showing the extent of depletion of Amazon Rainforest captured by Kate Markham

The December 2006 report of the Ghana News Agency (GNA), for example, revealed that the original forest cover in Ghana was 36% of the nation's landmass and reduced to 23% by 1972, 13.3% in 1990 and 10.2% in 2000. However, Kwasi Gyamfi Asiedu on May 1, 2019, stated that a new report has revealed that Ghana is losing its rainforest faster than any other country in the world. According to the report by Global Forest Watch ((GFW), which used updated remote sensing and satellite data from the University of Maryland, there was a 60% increase in Ghana's primary rainforest loss in 2018 compared to 2017. Cote D'Ivoire was adjudged the second highest country in the world with an increase of 28% loss of its primary rainforest. On the other hand, the GFW report states that "the Democratic Republic of Congo lost the largest size of tropical primary rainforest in Africa. Meanwhile, the world collectively lost 3.6 million hectares of primary rainforest in 2017 – an area the size of Belgium alone" (Asiedu, 2019).

Mat McDermott (2009) identified the following countries as the first ten countries with the highest deforestation rates in the world, Honduras (37%), Nigeria (36%), the Philippines (32%), Benin (31%), Ghana (28%), Indonesia (26%), Nepal (25%), North Korea (25%), Ecuador (22%), and Haiti (22%). However, a recent survey conducted by (GFW) shows countries that lost most rainforest in 2018 by percent increase from 2017 as follows: Ghana (60%), Cote D'Ivoire (28%), Papua New Guinea (22%), Angola (21%), Suriname (12%), Liberia (12%), Colombia (9%), Panama (4%), Tanzania (3%), and DR Congo (2%). For Ghana to be rated such high with regard to loss of rainforest indicates that deforestation problem poses a grave concern to country. It is even asserted that for decades, Ghana was one of the leading timber exports in the world but

its forest cover has reduced significantly over the years leaving timber processing firms in the country anticipating the importation of lumber from other countries (Asiedu, 2019).

In Ghana, and most part of Africa, illegal logging has been identified as a major cause of deforestation and desertification. According to Paul Appiah-Sekyere, the GNA has observed that, “We have come to realize that some 85 communities encourage illegal logged in 85 forest reserves for financial benefits because they did not receive adequate compensation” (Appiah-Sekyere, 2016, p. 58). It is further claimed that since the 1940s, more than 90% of the forest cover in Ghana has been destroyed and the destruction of the forest continues.

Obviously, certain human horrendous practices that put pressure on forest vegetations have significantly increased in recent decades. It has been observed that the need for agricultural land, increased demand for fuel and commercial wood, more and more dam construction, large-scale ranching and mining along with growing industrialization and urbanization have ruthlessly exploited the forests and have in turn created chaotic conditions and severe environmental imbalances (Mondal, 2018). In other words, the reduction of forest vegetation has really adversely affected the global ecosystem which has brought about water loss, soil erosion, land desertification, damaging biological diversity, intensifying greenhouse effect and threat of sustainable development of human society.

#### **d. Land Desertification**

Land desertification, also known as “land degradation” has been identified as one of the major environmental problems the world faces currently. It is, arguably, the environmental problem in the world that extensively affects

people, especially poor people, more than any other. The term has been explained to mean the degradation of land in arid and semi-arid areas mainly due to climate change and irrational human economic activities.

It is estimated that in 2000, drylands, which occupy 41% of Earth's land area, were home to a third of the human population, or 2 billion people (Safriel, 2017). Meanwhile, Pajares, Eckert, Berrahmouni, Kohler, Maselli, and Zelaya (2011) observe that some 10-20% of drylands are already degraded. Based on these rough estimates, about 16% of the dryland where people live are desertified, while a much larger number is under threat from further desertification.

In a similar instance, a number of studies had earlier on shown that by 1996, 36 million km<sup>2</sup> of global land area would have been degraded, and this would have affected one-sixth of world population from over 100 countries and regions in diverse ways (Jianping *et al.*, 2014). It is still estimated today that about 60,000 km<sup>2</sup> of global land become desertification every year.

Mondal attributes the causes of desertification or land degradation to a number of factors. For him, the major ones include climate change, overgrazing, deforestation and expansion of agriculture. Poor land and water management is also considered a contributing factor.

The negative impact of increasing desertification on the entire biosphere is unimaginable. It has caused severe hazards, threatening human living environment, speeding up deterioration of ecological environment and limiting socioeconomic development. Loss of vegetation can be said to be the major effect of desertification.



Scenarios of future development indicate that desertification and degradation of ecosystems, if not checked, will threaten future improvements in the well-being of humankind. This also has the potency to reverse gains made in some areas. Desertification, as asserted, ranks among the greatest environmental challenges today and is a major impediment to meeting basic human needs in drylands.

#### **e. Loss of Biodiversity**

According to Mondal, the extinction of several species or loss of biodiversity has generated much debate today among the environmentalists at international levels. The term biodiversity refers to the variety of life on earth. It is considered as the core component of Earth's life-support system and the material basis of human survival and development. The term is exclusively used to include genetic (biological genes) diversity, species diversity and ecosystem diversity (Jianping *et al.*, 2014).

Ecological research explicitly indicates a rapid extinction of many species from the ecosystem. Mondal presents an estimate that 20 to 75 species are becoming extinct each day because of deforestation. This loss of biodiversity is said to have been caused by the degeneration of life support system (Mondal, 2018). In other words, many plant and animal species are facing rapid extinction from ecosystem due to high rate of consumption and exploitation. The extinction of these species threatens the balance of ecosystem and also spoils the well-being of the remaining bio-organisms including human beings. Habitat loss, fragmentation and modification; overexploitation of resources; and chemical fertilizers, pesticides and oil pollution have been identified as the major causes of the loss of biodiversity.

Concern towards biodiversity has gained momentum due to the fast rate of species extinction, reduction of genetic diversity and disturbance to the atmosphere, water supplies, fisheries and forests. For example, it is revealed that due to human action, “in the past hundreds of years, species extinction rate has been 1000 times that of natural species extinction rate in history” (Jianping *et al.*, 2014). It has been estimated that there are about 12 % of birds, 23 % of mammals and 25 % of conifers faced with the risk of extinction. Mondal, for instance, has stated that some bird species such as vultures and kites became almost extinct (Mondal, 2018). The United Nations Environmental Programme (UNEP) has predicted that a quarter of biological species on the earth face the danger of extinction in the next two or three decades; and by 2050, about half of all animals and plants will be extinct from the earth (Jianping *et al.*). meanwhile, the 2013 GEC report indicates that the 10<sup>th</sup> Conference of Parties of the Convention on Biological Diversity held in October 2010 in Japan approved a ten-year Strategic Plan (2011-2020) as a roadmap for protection of biodiversity.

Jan Oosthoek and Barry K. Gills have warned that “destroying the life support systems by pushing the wrong buttons equates to species suicide” (Oosthoek & Gills, 2005, p. 287). They further reason that it is of prime interest that humanity takes determined action to appreciate better how the earth's ecosystems really operate, a duty that far supersedes normal political, economic and social planning.

Currently, environmental problems have been identified largely at domestic ranks; even though, humanity has only recently become aware that the environment is the most global system of all (Oosthoek & Gills, 2005, p. 287).

The bigger challenge now is the ability to conceptualize them as international issues. The ability of the international community and environmental stakeholders to address at least some major international environmental problems cannot be overemphasized, and will go a long way in saving the entire biosphere from a daring catastrophe.

### **Negative Impacts of Contemporary Environmental Problems**

The current situation of ecological crisis speaks volumes to the negative impact the environmental problems pose for the biosphere. In line with this, the *New Scientist*, an American Scientific Journal (as cited by Oosthoek & Gills, 2005), gives a stern warning that:

We must urgently address global warming before it is too late.

By changing the climate system of the planet, we are conducting an experiment that cannot be controlled. When the forces of climate change are truly unleashed it will be hard to reverse their effects. The melting of the polar icecaps, once commenced, may have a logic of its own” (Oosthoek & Gills, 2005, p. 284)

Obaji M. Agbiji attests to the fact that ecological challenges are still very prevalent in climate change, and the huge losses in biodiversity and environmental degradation (Agbiji, 2015). He observes that in as much as the entire planet earth as a community is being affected harmfully, the underprivileged and non-human species are the worst victims.

There is a clear indication that natural disasters and climatic variability have a disproportional impact on the poor (Bucknall, Kraus, & Pillai, 2000). For example, Eric Alden Smith has observed that the mortality rate from tropical storms in the middle income and less endowed countries is at least ten times

higher than in the advanced or higher income countries (Smith, 1992). Also in Japan, the average number of deaths per event is 23, compared to 196 in middle income Philippines (Bucknall, Kraus, & Pillai, 2000).

Environmental factors are, uncontestably, major components of the problem of disease in less advanced countries. For example, one study estimates that 20% of the total problem of ill health in one state in India is underpinned by environmental factors. In this case, environment is considered as encompassing household water supply, toilets, wastewater collection and treatment, indoor air pollution, agrochemical pollution, and urban air pollution (Hughes, Dunleavy & Lvovsky, 1999). Lack of access to adequate water and sanitation has been identified as the major cause of disease in less developed countries.

According to Juss, the US Environmental Protection Agency's Draft observed that in 1995, a minimum of 120 million US citizens lived in an area where air quality was poor due to too much air pollution. Also, it is said that close to 40% of America's surveyed water bodies are too polluted to support aquatic life, and at the same time about 20% are also too unsafe for swimming and boating (Juss, 1997).

Similarly, global warming is said to have a far-reaching influence on the world, such as polar glacier partial melting, intensification of sea level, submergence of some foreland regions, etc. According to scientific research, global warming has the tendency to cause precipitation change and abnormal climate, damage to the ecosystem, and emergence of droughts and floods. It is believed that these phenomena threaten both the production and survival of lifeform species and cause diseases related to heat wave. Frankenhauser (1995),

for example, claims that greenhouse impacts are likely to be much more severe in developing countries compared to the Organization of Economic Co-operation and Development (OECD).

The facts are clear now. The 21<sup>st</sup> century has witnessed a bewildering array of challenges which could never be imagined fifty years ago (Stott, 1999).

As suggested by White, now that the entire cosmos is threatened by ecological crisis; it is time to "rethink our axioms" (White, 1967, p. 1204). White posits that "if the deep roots of the crisis lie in cosmological values, then so does the remedy." It has now come to a full realization that ecological injustice has a direct link with socio-economic injustice in particular, which results in poverty and a negative impact on the entire environment (Tucker, 2011).

In brief, humankind's nefarious activities have impacted negatively on the environment which has brought about serious crises in recent times. The reactions of the crises spring from activities classified fundamental to economic development. The impact is alarming as it threatens the biosphere. It is dangerous to look on for the crisis to continuously persist. The current state of the earth may be accurately described as a ticking time bomb waiting to explode.

Having outlined the state of ecological crisis and its impacts today, we now proceed to look at what the scholars and theologians are saying regarding the root cause of this global problem. The important question which has been battling the minds of many ecological thinkers in the past few decades is how come we have reached this stage of global ecological crisis.

In all, some scholars are of the view that the world has reached this state of ecological crisis because of Christianity. As a result, Christianity has received countless bashings and castigations for many years and in many contexts as a

faith tradition responsible for masterminding the Western civilization's willingness to exploit the earth and natural species to expand human development. They claim that certain features in Genesis 1 account (1:26-28) encourage Christians to have negative attitudes towards the environment. This claim cannot be accepted to have been backed by the text in question. However,

there is therefore the need to carefully examine the text to determine the truth or otherwise of this claim.



## CHAPTER THREE

### INTERPRETATION OF THE TEXT (GENESIS 1:26-28)

#### Introduction

Chapter Two assessed the nature of the current global ecological crisis and its effects on all life-forms in the biosphere. It concluded with arguments by scholars on the claim that Christianity is responsible for contemporary global ecological crisis. They have asserted that Christianity is responsible for inflicting harm on nature which in turn has brought about this crisis because of certain narratives in Genesis 1. Consequently, this Chapter takes on the interpretation of Genesis 1:26-28 as part of the creation story which has become the subject of controversy in the academic field. It explores a brief background to the creation story in Genesis, and a summary of the story. It then interprets and analyses the text in Genesis (1:26-28) that is often cited as giving Christians the right to exploit the environment or the nature on the basis of its historical meaning. The Chapter ends with an understanding that the text itself does not mandate Christians to destroy the environment but to rather 'guard' it.

#### Background to the Creation Story in Genesis

As far back as human memory is able to grasp, Genesis has been regarded as part of a larger unit concerning the first five books of the Bible, known by the ancient Hebrews as *Torah*. This Greek word, Genesis, has various meanings including birth, existence, origin, genealogy, source and generation (Carter *et al.*, 1979). In a similar vein, the ancient Hebrews named the book *Bereshith*, meaning "In the beginning," which form the first words of the text in the Bible. The book of Genesis itself does not specify clearly its author and also the information of events recorded in it predated Moses, yet the authorship of

Genesis is attributed to Moses. It is posited that he relied on certain existing documents and oral traditions to write the book of Genesis. It was originally written to the people of Israel in the Middle East area around 1450-1410 BC. The account of the historical context in the book postulates about 2000 years of Israel's history from creation to the era of the fathers of the Jewish nation, often referred to as the "patriarchs." Giving it a broader scope, John Skinner (1910) mentions that the Book of Genesis constitutes the opening-section of a wide-ranging historical narrative which, in the Hebrew Bible, spans from the creation of the universe to the middle of the Babylonian Exile (2 Kings 25:30).

Walter Brueggemann, who writes purely from Christian point of view for Christian faith states that the texts in the book of Genesis address the community of faith in its current context (Brueggemann, 1982). He notes that Martin Luther and John Calvin's older expositions and commentaries on Genesis are suggestive, whereas those of more recent scholars such as Gunkel, Von Rad and Westermann are critical.

The first eleven chapters of Genesis, within which the text under consideration is located, are considered as among the most important parts in the Bible (Brueggemann, 1982). While at the same time they are among the best known, they are also "frequently the most misunderstood ... because of the style and character of the literature" (Brueggemann, p. 11). Meanwhile, a close reading of the book reveals, among other things, the sublime and satisfying stories concerning creation of the universe and the history of primitive mankind prior to the call of Abraham. Christian theology posits that creation is the first and one of the most basic teachings of the Bible.



Scholars through formulation and use of various hypotheses and exegetical analyses of the texts in Genesis have identified two contrasting and incompatible narratives in the creation story which are often placed side by side (Thompson, 1971). These narratives are composed of excerpts from the main sources of the Pentateuch. However, many scholars claim that these two documents have been fused together in the story of the deluge to constitute a common continuous narrative such that obvious contradictions and discrepancies are retained in the narrative. The two distinct creation narratives outlined in the study of the book are Genesis 1-2:4a, identified as Priestly Code or P account, and Genesis 2:4b-25 also identified as Yahwistic document or J account whose material extends largely to chapter 4:26.

For the purpose of this study, I have mainly concentrated on the Priestly version of the creation account because the text under consideration is found within this block. However, it is appropriate to point out a few differences between the two diverse accounts of creation. The view of primal condition of the universe captured in Genesis 1 differs from what is presented in Genesis 2. Chaos, for instance, is portrayed in Genesis 1 as a sea, whilst in chapter 2 as a desert. Furthermore, the sequence of creation in Genesis 1 flows as follows: plants, beasts, and humankind; whereas in Genesis 2 it follows this way: humankind, plants, and beasts. Similarly, man and woman are created the same day and at the same time in Genesis 1; but in Genesis 2, they are created at different times as the man comes first and later the woman.

Another disparity in the creation accounts in Genesis as identified by scholars has to do with the linguistic use of Hebrew words to describe the act of creation. In Genesis 1, *bara'* is used as against *yasar* in Genesis 2. According

to Thompson (1971), stylistic differences also exist between the two accounts. Unlike the P version which is restrained and prescribed in nature, mostly characterized with recurring stereotyped expressions; the J has spicy and bright style which has a captivating presentation clearly preserved in the account.

According to scholars, the Priestly account has both motive and communicative intention. Its motive, like Deutero-Isaiah, is to engender hope (particularly among the exiled community), whilst its communicative intention is to provide a narration in line with this hope to fulfill the purpose of God for His people. Although, both the P and Deutero-Isaiah have similar basic motive; yet, they have different communicative intentions.

In a similar discussion, Mark G. Brett (1991) observes that the scholarly argument of the Priestly creation story (Gen. 1-2:4a) has been concerned by vague opinions about the intentions of its author. Scholars, even though, opine that there is a wide range of different facets of P's intention; Brett, however, believes that there is a myriad of exegetical disputes, probably, due to a failure to identify the different facets of P's intention. He insists further that a concern with P's intention has not always been the key interest of studies on Genesis 1 by scholars.

Accordingly, some scholars claim that the Priestly creation story is a myth. Hermann Gunkel who in his famous work *Schöpfung und Chaos in Urzeit und Endzeit* (1895) (as cited in Brett, 1991) argues that the creation story in Genesis 1 has a mythological origin, however, concedes that the story is a 'faded myth.' According to Brett, Gunkel concludes that the creation story is "the deposit of a long tradition" (Brett, p. 13). His argument stems from the fact that the text in Genesis 1 provides some hints that P could not have intended.

Gunkel's work sought to portray that the text carried a great deal of traditional information, and that it was not consequently the free construction of its author. Similarly, Brett points out that S. H. Hooke and Mircea Eliade understand the Priestly creation story as a myth which might be considered a ritual text which aims at protecting the well-being of the universe and of humankind.

On his part, George Coats in his form-critical commentary on Genesis understands the genre of the creation story as a 'report' rather than a history. His view suggests that creation is a single event. Of course, it is obvious to an extent that Genesis 1 is briefer than, for instance, the Deuteronomistic History.

Commenting on Genesis 1-15, Gordon Wenham's (1987) argument focuses mainly on 'original intentions of Genesis.' In his view, the genre of the early chapters of Genesis should be understood as 'proto-historical' stories. Following Gerhard von Rad's opinion, Wenham claims that the original audience of Genesis 1-15 understood the stories as 'factual reports.' Also, Wenham, like Coats, concedes that these stories cannot be considered history in a formal sense and as a result cannot be regarded as a historical writing in a modern understanding.

Whereas scholars such as Coats and Wenham consider the text as a report or proto-historical story, and Gunkel, Hooke and Eliade also as a myth; Brueggemann insists that the text here is "a proclamation of God's decisive dealing with his creation" (Brueggemann, 1982, p. 26). He stresses further that the whole cluster of words – creator/creation/create/creature – are confessional words freighted with peculiar meaning. This P account (Genesis 1:1-2:4a) has had more than its share of attention, even though the power of the text transcends every interpretation.

## The Story

The book of Genesis which sets the stage for the rest of Judaeo-Christian scripture and also contains information of pre-history focuses on, among other things, the narratives of creation. Christian theology holds that God (Hebrew *Elohim*) created the material universe (Gen. 1:1), every living thing (1:20-25), and human beings in His image and likeness (1:27). After creation of humankind ‘in the image and likeness’ of Elohim, they were given an injunction to “be fruitful and multiply, “subdue the earth” and have “dominion over” nature. The account closes with the divine verdict of approval, which takes into consideration the general survey of all that has been created and certified to be “very good.”

The biblical text in Genesis indicates that the original creation was out of nothing (*ex nihilo*). The material creation by its nature is contingent, finite, limited in space and time, and good (Geisler, 2003). The concept of creation is treated in unity, except that distinction is most times made between human and non-human creatures. Human beings are perceived to be a distinct creation. They are cited often as representatives of all creation, a part of the whole. The creation of humankind (both male and female) on day six of creation is often viewed as the zenith of creation. In the words of Geisler, “the human race possesses dignity, unity, and community” (Geisler, p. 458).

As far as this study is concerned, scholars have confronted particularly the story recorded in Genesis 1:27-28 with keen interest. The text reads: “And God created man in his own image, in the image of God created he him; male and female created he them. And God blessed them: and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it; and have

dominion over the fish of the sea, and over the birds of the heavens, and over every living thing that moves upon the earth.” Some of these scholars claim that this particular text underscores the fact that human beings have been set over and above creation, and as a result warrants them the right to manipulate and exploit nature. The world today is experiencing terrible environmental problems which have reached a crisis level because of humans’ negative attitude and impact towards the environment.

Many factors account for this situation, but the view of many scholars that the humankind is the centre or pinnacle of creation and that everything else in the universe has been made for his benefit and use appears to gain currency in scholarship in recent times. It is by this idea that Christianity is perceived to be an anthropocentric religion. However, others too hold a contrary view to this claim. Obviously, a careful reading, proper interpretation and critical analysis of the text will help settle the matter of this debate.

### **Interpretation and Analysis of the Text**

This section concentrates on interpretation and analysis of the text (Genesis 1:26-28) which is located within the textual unit that constitutes the Priestly account of creation (Genesis 1:1-2:3). For a biblical text to make meaning, it has to be interpreted. Obviously, interpretation of a text is affected by its original context and the history of interpretation (Horrel, 2010). Horrel stresses that meaning is produced through the continuing interaction between the reader and the text. Adding further, Ernest Conradie explains that “interpretation happens in the interaction between the readers’ contemporary context and the ancient text so changing contexts and demands bring new perspectives and doctrines to light” (Conradie, 2004, p. 124).

Scholars have proposed several structures for analysing the text of that unit. For instance, scholars such as Wenham (1987), Mckeown (2008) and Okyere (2011) have adopted parallel structure as an analytical aid to study the narratives of the six days creation events. In likewise manner, this study follows the structure presented by R. Boaz Johnson. He postulates that the Priestly account has been literary structured in synchronization with its six corresponding days of creation. According to him, the Day 6 (1:24- 31) saw the creation of living creatures, that is, animals and humans and the mandate given to humankind to exercise dominion over creation (Johnson, 2009). The study further adopts this structure guided by narrative criteria based on a careful analysis which leads to how the author of the book of Genesis employed narrative as a theological aid to discover the meaning of the text in relation to the environment by focusing on the sixth day of creation (1:26-28).

The analysis of the text is guided by Narrative Criticism as proposed by Mark Allan Powell (1990). According to Tolmie (1999), the approach explores words, phrases, metaphors, and narrative features used in the narration for better understanding of the text.

One aspect of the creation story that has given rise to an intense scrutiny is the creation of humankind and his relationship with the rest of creation. It is asserted that Genesis 1:26-28 is the most widely used text by scholars in analysing the relationship between humankind and the environment (Gatti, 2018).

The sixth and last creative day commences with the completion of the creation of animal species, and the creation of humankind, which some theologians regard as the climax of God's creation, emerges towards the close

of this same day. It is opined that the manner in which humankind was created makes him unique such that he does not share commonality with the rest of other creatures. This idea has therefore led to a belief that humankind is less concerned about the need to take care of nature, more specifically the environment. In view of this, the text under study is being examined along some specific important considerations. But, I want, first of all, to look at what others think about humankind being unique in creation with reference to the creation story in Genesis.

#### **a. The Uniqueness of Humankind from Non-Human Creatures**

The creation of humankind is believed to be unique and also the most important of all creative acts, hence, distinct from other non-human creatures. For this reason, humankind is given the right to rule over creation. According to Haines (1979), at least, four key things are obvious in the creation narratives of Genesis 1 to substantiate this argument.

Firstly, there is a divine consultation as suggested by the text **נַעֲשֶׂה אָדָם** (*na'āseh 'ādām*) meaning, “Let us make man” (1:26). Interestingly, the use of this phrase, “Let us make”, has triggered a debate among scholars. Some explain that the plural form used implies that Yahweh was addressing the divine assembly of heavenly council (Westermann, 1984), as often found in the Old Testament text (cf. 1 Kings 22:19-23; Job 1:6-12, 21:1-6). It is argued that Yahweh, in these texts, is speaking to heavenly bodies like angels as well as ‘sons of God’ as used in the book of Job. This clearly shows that Yahweh did not take a unilateral decision when it comes to the creation of humankind, an act that is not seen about the creation of the non-human species. According to William P. Brown (2010), the collaborative act of Yahweh’s consultation of the

‘heavenly council’ in the creation of humankind demonstrates that human beings are unique and their creation too is very crucial in the creation order.

This interpretation is, however, denied by Wenham (2002) as he opines that the verb “create” used in 1:27 is singular and that suggests that Elohim worked singlehandedly in the creation of humankind. This position is underpinned by the Jewish monotheistic philosophy. The expression *na‘āseh ‘ādām* can therefore be considered as a divine proclamation to the celestial court, announcing to the angelic host the master stroke of creation, man. This idea is similar to Job 38:4, 7 as it reads: “When I laid the foundation of the earth ... all the sons of God shouted for joy” as also compared to Luke 2:13–14.

There are some scholars who find the interpretation that Yahweh created human beings in consultation with ‘other beings’ based on the phrase, “Let *us* make”, problematic. One such scholar is James Mckeown (2008) who finds this interpretation ‘obsolete’, and it calls for careful interpretation of the phrase. He posits that accepting this interpretation implies believing that human beings were not solely created in the image of Yahweh, but also in the image of other heavenly beings which contradicts the Christian belief that Elohim alone created humankind in his own image and likeness. Meanwhile, he concedes that a Christian interpretation of the plurality of the phrase only exist to concur that Elohim consulted with the Trinity in the creation of human beings. This point supports Wenham’s assumption that God was rather speaking to himself, that is his spirit, revealed his active participation in the creation process (Genesis 1:2). According to Mckeown, Clines submits that “it is perhaps not inconceivable that the Spirit could have been similarly thought of by the author of Genesis as another ‘person’ within the divine being” (Mckeown, 2008, p. 26). The



researcher opines that author's use of the phrase "Let us make" was to, perhaps, draw the attention of his audience to the fact that the Creator God communicated with his Spirit when it came to the point of creating human being. He further suggests that God took consultation on his intention to create a being who would be fit as his representative in the midst of his creation.

Secondly, humankind is made in the "image" (*bəšalmô*) and "likeness" (*kidmūtô*) of God (1:26). In other words, traditional Christian exegesis describes humankind as having two distinct characteristics of his nature. There is not the least suggestion that any other creature, apart from humankind, was created in the image and likeness of God. It is stressed that the *bəšalmô* of Elohim is something that differentiates man from the animal kingdom. However, the situation of classifying the *bəšalmô* of Elohim with man's bodily form or upright posture is consequently unsubstantiated. Also, the expression "in the *bəšalmô* and *kidmūtô* of Elohim" is an indication that humankind is not a direct image of Elohim (Mensah, 2012). This understanding comes close to the suggestion that humankind is not certainly a replica of Elohim himself, but rather a replica of something bearing the divine image.

Scholars find it difficult in determining what the author of the book of Genesis means by the image of Elohim. Clines (1968) asserts that in reading biblical chapters such as found in Genesis 1 and in studying the history of the interpretation of a biblical text or passage, the relevance of the dogma is often out of place to the concise dealing it receives in the OT. According to Clines, the meaning of 'the image' "cannot be satisfactorily deduced from the Old Testament because Old Testament faith strongly opposed the use of images and no rationale for images can be found in its pages" (Clines, 1968, pp.80-81).

Wenham (2002) concurs with Clines that though no completely satisfactory explanation can be given with respect to humankind being created in the image of Elohim, some may have elements of truth in them. Can one satisfactorily explain generally the understanding of the phrase “in the image of God” used by the author? Then such one should answer the question, “What are the distinctive qualities of humankind which result from his creation in the divine image?”

Many views of creation of humankind “in the image of God” have been expressed. Claus Westermann’s (1984) view is found to be one of the most tenable. He observes that the phrase “in our image” (*bə-ṣal-mê-nū*) is always cited regarding the creation of humankind. Nevertheless, the texts in Genesis 5:3 and Exodus 25:40 submit that “in the image” designates the product of creation rather than the process. The *bəṣalmô* consists of the natural qualities in humankind that make him resemble Elohim or a physical resemblance of Elohim. Although humankind is made to resemble the divine image, the question about the import of this distinct process still persists.

In another sense, humankind is considered as a vice-regent of God on earth because of the divine image in which he has been created. He therefore rules the world on behalf of God. Since humankind is God’s representative, his life is sacred and any harm done to him is a harm to Elohim, the creator. This consequently warrants ultimate sanction (Genesis 9:5, 6). Admittedly, this evidently does not express the original meaning. It only explains the function of the divine image or the penalties associated with any affront to it. In brief, the researcher submits that one essential meaning of the phrase “in the image of God”, portraying how humankind was created, is that human beings are to a

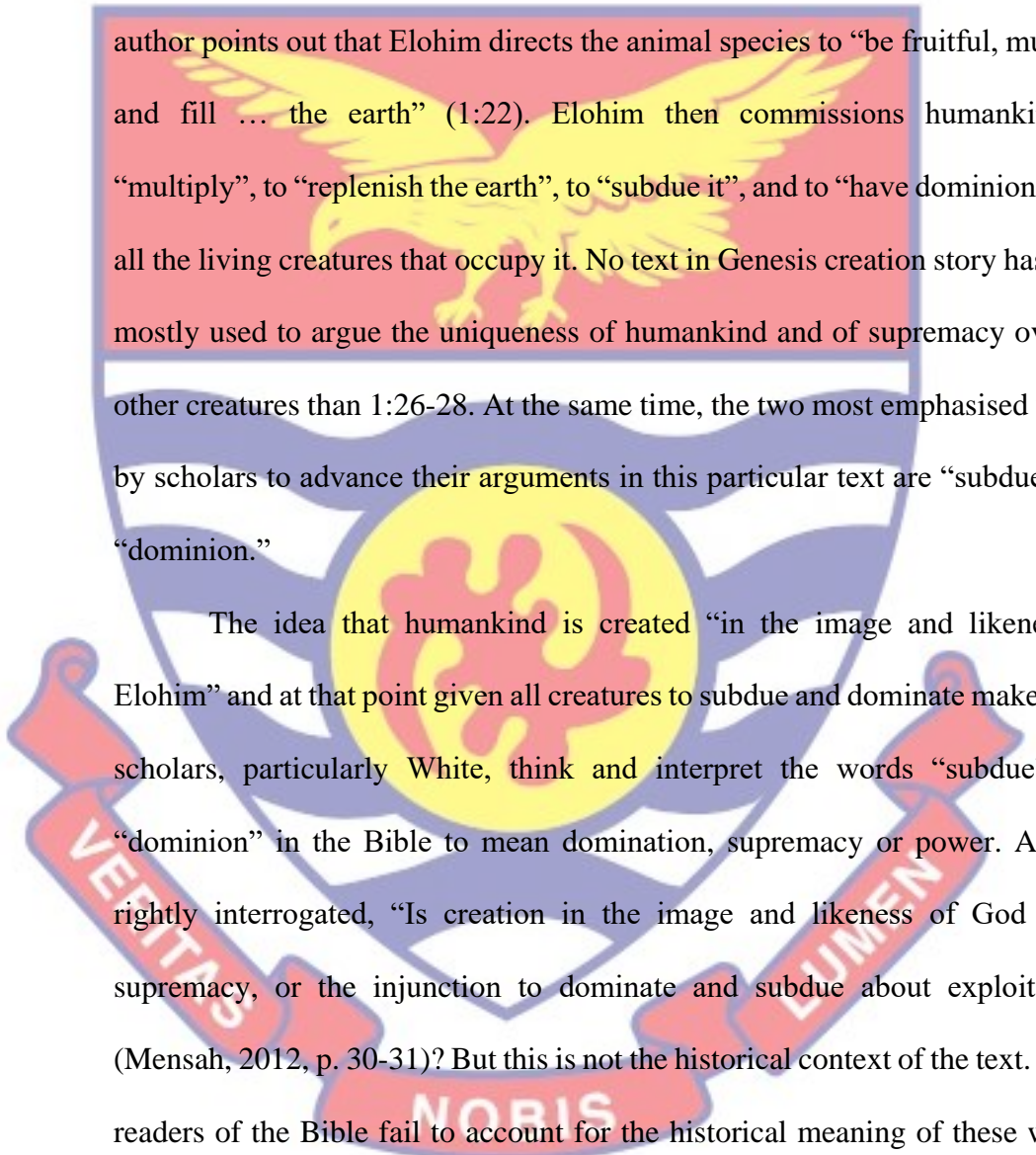
large extent like God. Even where the resemblance between God and humankind is difficult to determine more precisely, the relevance of this account of the nature of humankind for the understanding of biblical position could not be under-estimated (Clines, 1968). Just as God is caring about all creation, so humankind was created to be caring of all God's creation entrusted to their care.

Thirdly, humankind was created "male" and "female" (1:27). "Man is the only creature of whom God makes requirements in the area of sex" (Haines, 1979, p. 29). According to Skinner, the suggestion "that man as first created was bisexual and the sexes separated afterwards is far from the thought of this passage" (Skinner, 1910, p. 33). The phrase "male and female" is mostly used in legal texts, and emphasises somewhat the sexual dissimilarities within mankind (Wenham, 2002).

Unlike the creation account of humankind in the J document where Yahweh Elohim forms the woman out of a part of man, in the P account the two are formed simultaneously. The author narrates in Genesis 2:21-22: "And Yahweh (Jehovah God) caused a deep sleep to fall on the man (Hebrew *ish*) ... and the rib, which Yahweh had taken from the man (*ish*), made he a woman (Hebrew *ishshah*), and brought her to the man." It is therefore indicated in this account that the man was created first before the woman, but the narrator indicates in the Priestly account of humankind's creation that both the man and the woman were created simultaneously and in a similar manner: "in the image and likeness" of Elohim. The author, perhaps, for the purpose of making distinction between humankind and non-human creatures intentionally describes the process of humankind's creation by Elohim or Yahweh Adonai. These bases provide grounds for some theologians and other thinkers to assume

that humankind is differentiated from the rest of creation. Others too capitalize on such assumptions to make claims that humans mistreat nature as a result of this belief.

Fourth and finally, humankind after being created “in the *bəšalmô* and *kiḏmūtô* of Elohim” is given a specific instruction in relation to his world. The



author points out that Elohim directs the animal species to “be fruitful, multiply and fill ... the earth” (1:22). Elohim then commissions humankind to “multiply”, to “replenish the earth”, to “subdue it”, and to “have dominion over” all the living creatures that occupy it. No text in Genesis creation story has been mostly used to argue the uniqueness of humankind and of supremacy over all other creatures than 1:26-28. At the same time, the two most emphasised words by scholars to advance their arguments in this particular text are “subdue” and “dominion.”

The idea that humankind is created “in the image and likeness of Elohim” and at that point given all creatures to subdue and dominate make some scholars, particularly White, think and interpret the words “subdue” and “dominion” in the Bible to mean domination, supremacy or power. As it is rightly interrogated, “Is creation in the image and likeness of God about supremacy, or the injunction to dominate and subdue about exploitation” (Mensah, 2012, p. 30-31)? But this is not the historical context of the text. These readers of the Bible fail to account for the historical meaning of these words, which alone provides adequate grounds for their claims to be easily disputed. What then are their meanings in the context of the Bible?

The Hebrew translation of the words “dominate” or “have dominion” and “subdue” are *rādāh* and *kābaš* respectively. The word *rādāh* has twenty-three appearances in the Hebrew Bible. In most cases, its occurrence is characterised by the act of supremacy or dominance by use of power or the imposition of one’s will upon another as cited by Mensah (2012). Its use in some Old Testament passages such as 1 Kings 4: 24; Isaiah 14:2; Psalm 72:8; 110:2 attest to this. For instance, in 1 Kings 4:24, it is read that King Solomon’s dominion extended over all the kingdoms and enemies of the state of Israel. Also, the use of *rādāh* in Leviticus 25:43, 46, 53 carries a similar meaning. In fact, its use in this context is negative, and implies ‘ruling ruthlessly’ as it is also indicated in Ezekiel 34:4.

Unlike its negative connotation in other passages, *rādāh* occurs in Genesis 1:26, 28 in a different context – with a positive sense. Humankind, as God’s image-bearer on earth and also blessed by Elohim, is to “rule over” all living creatures similarly created and also blessed by Elohim. The idea that the use of *rādāh* in this particular text connotes ruthlessness or exploitation is out of place. It is no way a license for the unstrained destruction and subjugation of nature. The word *rādāh* is here used in a sense similar to the Ancient oriental kings whose duty it was to secure the welfare of their subjects, particularly the poorest and weakest members of society (Psalm 72: 12-14). It is claimed that “dominion implied kingship and in the Bible, this was often linked with responsibilities to subjects rather than tyrannical despotism” (Gillmor, 1996, p. 263).

Contrary to the viewpoint of its Babylonian counterpart, the Hebrew creation account of Genesis 1 shows that Elohim conferred on *'ādām* (adam) the power of earthly rule, not on the king or emperor, but simply on “mankind” (Pagels, 1985). It is said that during the era between the first and the fourth centuries, most Christian apologists sided with Gregory of Nyssa. Having been so influenced by the rabbinic tradition, he describes that after God created the world “as a royal dwelling place for the future king” he made humanity “as a being fit to exercise royal rule” by making it “the living image of the universal King” (Pagels, p. 67).

In a broader sense, humankind is here commissioned to rule nature as a caring king, acting as God’s representative over them and therefore handling them in the same way and manner as Elohim who created them. Accordingly, animals, nonetheless subject to man, are regarded as his companions in Genesis 2:18-20 (Wenham, 2002). A good example of this companionship is the action of Noah, who can be described as the arch-conservationist who built an ark to preserve all kinds of living creatures from being destroyed in the deluge (Genesis 6:20; 7:3).

Contrary to *rādāh*, the word *kābaš* has thirteen appearances in the Hebrew Bible. *Kābaš* is used in connection with *rādāh* in Genesis 1:28 to fashion out how humankind is to behave towards the created order. Also, the word occurs in Numbers 32:21-22, 29. Over here, it describes the Israelites’ act of fulfilling their duty for the Lord in their conquest of Canaan to *subdue* the land. In a similar sense, *kābaš* is used in Joshua 18:1 and 1 Chronicles 22:17-19 to indicate the land being *subdued* and ready for the building of the Temple.

So, in Genesis 1:28 where God commissions humankind to take control over the land, he means for them to make the environment into a place where they can live and flourish (Amewawo, 2012). The word *kābaš* in this context is not meant to have a negative connotation as it does today. No! Elohim never creates humankind to be destructive agents of his creation. It is suggested that

“the honour and the responsibility of stewardship is conferred on us by God ... to care for, sustain and protect the entire creation like beings made in the image and in the likeness of God the Creator” (Amewawo, p. 17). In view of this, God’s wrath comes ‘to destroy those who destroy the earth’ (Revelation 11:18).

The Bible states that God places humankind in the Garden of Eden to “till it and keep it” (Genesis 2:15). This “tilling” denotes cultivating, ploughing or working, whereas “keeping” means caring, protecting, overseeing, and preserving. Elohim’s directive to humankind to *subdue* the land in the creation story indicates a responsibility to care for the nature and preserve it, rather than to exploit it. “This implies a relationship of mutual responsibility between human beings and nature” (Pope Francis, 2015, p. 67). This relationship between man and nature is reflected in the rest of the Bible. In other words, the Bible teaches humankind how “to live in harmony and ‘Peace with God the Creator, Peace with all of Creation’” (John Paul II, 1990, 52). The case of Noah building an ark to keep alive all kinds of animal species (Genesis 6:20), and also how animals are allowed the same day of Sabbath rest as humans (Leviticus 25:1-7; see also Exodus 23:10-11) are all clear examples. Elohim respects and delights in nature, and its existence glorifies him. Since Elohim is pleased with nature, humankind should be kind to it and have reverence for Elohim’s creation.

For one to interpret the words *rādāh* and *kābaš* correctly, it is significant to understand the historical context in which the book of Genesis was written. And to fully grasp the historical and contextual meaning of the text, one has to consider the period in which the book was written and the context surrounding its words. This point is further articulated by a South African theologian, Kivatsi

J. Kavusa, who argues that:

In whichever reading, the interpreter is invited not to mix in one mould the biblical statements and his/her current realities. This means that our realities should never dictate the direction of biblical interpretation, but both worlds should remain in a constantly enriching dialogue (Kavusa, 2019, pp. 229).

It is therefore crucial to take into consideration the condition of the surrounding background of the text, when we are analyzing the fact that Elohim commissions humankind to “subdue” the land. When Elohim created humankind, earth was a waste and void environment. Therefore, the injunction to humankind to “rule over” all creatures and to “subdue” the land in the creation story does not connote exploitation of the environment. One must accept the fact that biblical texts were formulated in a world that knew nothing about contemporary ecological crisis. It is obvious, therefore, that the Bible does not promote or in any way gives credence to the abuse of nature as some scholars postulate.

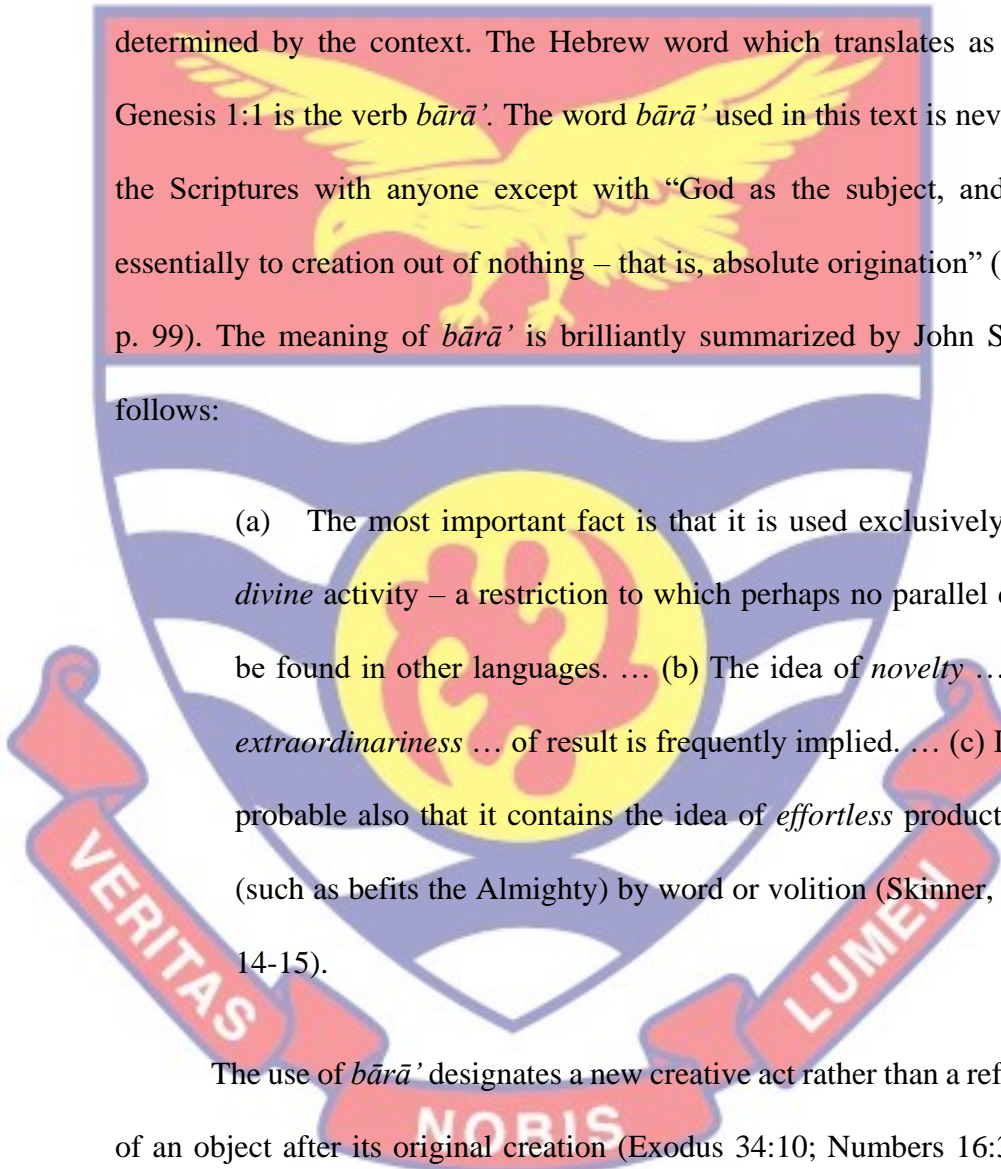
#### **b. Commonality Between Humankind and Non-Human Creatures**

The idea that human beings are viewed as the pinnacle of creation and superior to the non-human creatures for which reason they are allowed to manipulate creation does not suffice. This so because both human and non-human world have something in common. They are all created by God or



*Elohim* as enshrined in the Judaeo-Christian scriptures. *Elohim* alone truly creates (Williams, 1996) and this creation is *ex nihilo*, “out of nothing”. In an actual sense, the concept of *creatio ex nihilo* is not essentially contained within the word ‘create’ (Skinner, 1910). However, this is the most appropriate word for the author to use to express this concept of creation and its meaning is

determined by the context. The Hebrew word which translates as *create* in Genesis 1:1 is the verb *bārā’*. The word *bārā’* used in this text is never used in the Scriptures with anyone except with “God as the subject, and it refers essentially to creation out of nothing – that is, absolute origination” (Williams, p. 99). The meaning of *bārā’* is brilliantly summarized by John Skinner as follows:

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- (a) The most important fact is that it is used exclusively of *divine* activity – a restriction to which perhaps no parallel can be found in other languages. ... (b) The idea of *novelty* ... or *extraordinariness* ... of result is frequently implied. ... (c) It is probable also that it contains the idea of *effortless* production (such as befits the Almighty) by word or volition (Skinner, pp. 14-15).

The use of *bārā’* designates a new creative act rather than a refashioning of an object after its original creation (Exodus 34:10; Numbers 16:30; Psalm 51:10; Isaiah 4:5; 41:20; 48:7; 65:17,18; Jeremiah 31:22). It is strongly intimated that the word “*bārā’* is never connected with a statement of the material” (von Rad, 1961, p. 47). However, this does not automatically indicate

that Elohim's creation is without the involvement of material resource as it will soon be pointed out.

Elohim really brings something completely new into the situation. The basic emphasis of the word *bārā'* is on the originality or newness of the created entity (Williams, 1996) as indicated in Genesis 1:27. In fact, *bārā'* is also used in 1:1, 21 and 2:3 in the same context. The word *bārā'* is used in Genesis to connote bringing into existence the universe, living creatures, and man. According to Millard J. Erickson, *bārā'* “never appears with an accusative which denotes an object upon which the Creator works to form something new” (Erickson, 1985, p. 368).

Likewise, Genesis 1:1 in its traditional translation reads: “In the beginning God created the heavens and the earth.” According to Joshua D. Wilson, this is called the traditional translation because it has been the leading rendering of Genesis 1:1 since the Greek Septuagint, the first key translation of the Hebrew Bible into Greek, formed by Jewish scholars in the third century BC (Wilson, 2013). The text here establishes that Elohim created the universe. Similarly, 1:21 reads, “And God created the great sea-monsters, and every living creature that move, ... and God saw that it was good”; and 1:27 also reads, “God created man in his own image, in the image of God created he him; male and female created he them.” Per these texts, both human and non-human creatures may be considered as products of the same Creator, Elohim. This is consistent with scholars who look at the text from the philosophical perspective that the creation story in Genesis vis-à-vis the interrelation of human and non-human creation is treated together without differentiation (Brueggemann, 1982). This means that all creation stands before God in the same way, as the

single reality of creature vis-à-vis creator (9:9-10). On the contrary, human creation is considered by other philosophers as superior and non-human as subordinate (1:25-30; 2:15). This statement also means that “human creatures are designated to *order, rule, and care for* the other creatures; creatures are to *obey and to be responsive to* the human creatures” (Brueggemann, p. 11).

In another instance, it is evident that not only are humankind and non-human creatures created by Elohim; but also, they are all created in the same day – the sixth and last creative day. It is read that Elohim made “the wild animals”, “the livestock”, and “all the creatures” that creep upon the ground, all according to their likeness on “the sixth day” (*yôm haššiššî*, 1:25). Similarly, human beings were also created on “the sixth day” (*yôm haššiššî*, 1:31). This unique day commenced with the completion of the creation of animal world and at the same time, witnessed the creation of the last creature, man, towards the close of this day. Another clear example of commonality between human and non-human creatures.

Also, not only humankind and non-human creatures are all created by Elohim and in the same day, they are all given the plant world for food. In Genesis 1:29, it is read: “And God said, ‘Behold, *I have given you every herb* [emphasis added] yielding seed, which is upon the face of all the earth, and every tree, in which is the fruit of a tree yielding seed; to you it shall be *for food* [emphasis added].” Also in 1:30, similar provision is made for the animal kingdom, “and to every beast of the earth, and to every bird of the heavens, and to everything that creeps upon the earth, wherein there is life, *I have given every green herb for food* [emphasis added]: and it was so.” Science confirms

Scripture by pointing out that both human beings and animals are entire dependent, directly or indirectly, on the plant kingdom for survival.

But according to Skinner (1910), a distinction is made between the food of man and that of animals. The former is given ‘seeding plants’ and ‘fruit-bearing trees’, whereas the latter is given ‘all the greenness of herbage’, i.e. the succulent leafy parts. The report is not comprehensive in the sense that no provision is made for fishes, nor is there any mention of the use of such supplies as milk, honey, etc. However, in Genesis chapters 2 and 3, the difference is noted where humankind is required to live on fruit alone, and only as part of the curse has herbs allotted to him.

Another point indicating that humankind is not distinct from the non-human creatures is having them both received same pronouncement of blessing by Elohim right after their creation. Elohim’s blessing on mankind is comparable to that pronounced on the animals in Genesis 1: 22. Over here, the author states that it is said of Elohim after creating non-human species: וַיְבָרֶךְ אֱלֹהִים (way<sup>e</sup>bārek<sup>k</sup> ’ōtām ’ēlōhîm, “And God or *Elohim* blessed them,”). Also, after the creation of humankind in 1:28, the same thing is said of Elohim: וַיְבָרֶךְ אֱלֹהִים (way<sup>e</sup>bārek<sup>k</sup> ’ōtām ’ēlōhîm, “And God or *Elohim* blessed them,”).

In the same vein, the same instruction is what Elohim issues to the human and non-human species after the creation of each of them. In 1:22, Elohim after creation of the non-human directs them to be: פְּרוּ וּרְבוּ וּמְלֵאוּ אֶת-הָאָרֶץ ... (pārū ūrəbū ūmil’ū ... ’et-hā’āreṣ, “Be fruitful and multiply and replenish ... the earth”). Likewise, Elohim after creation of humankind directs them, in 1:28, to be: פְּרוּ וּרְבוּ וּמְלֵאוּ אֶת-הָאָרֶץ (pārū ūrəbū ūmil’ū ’et-hā’āreṣ,

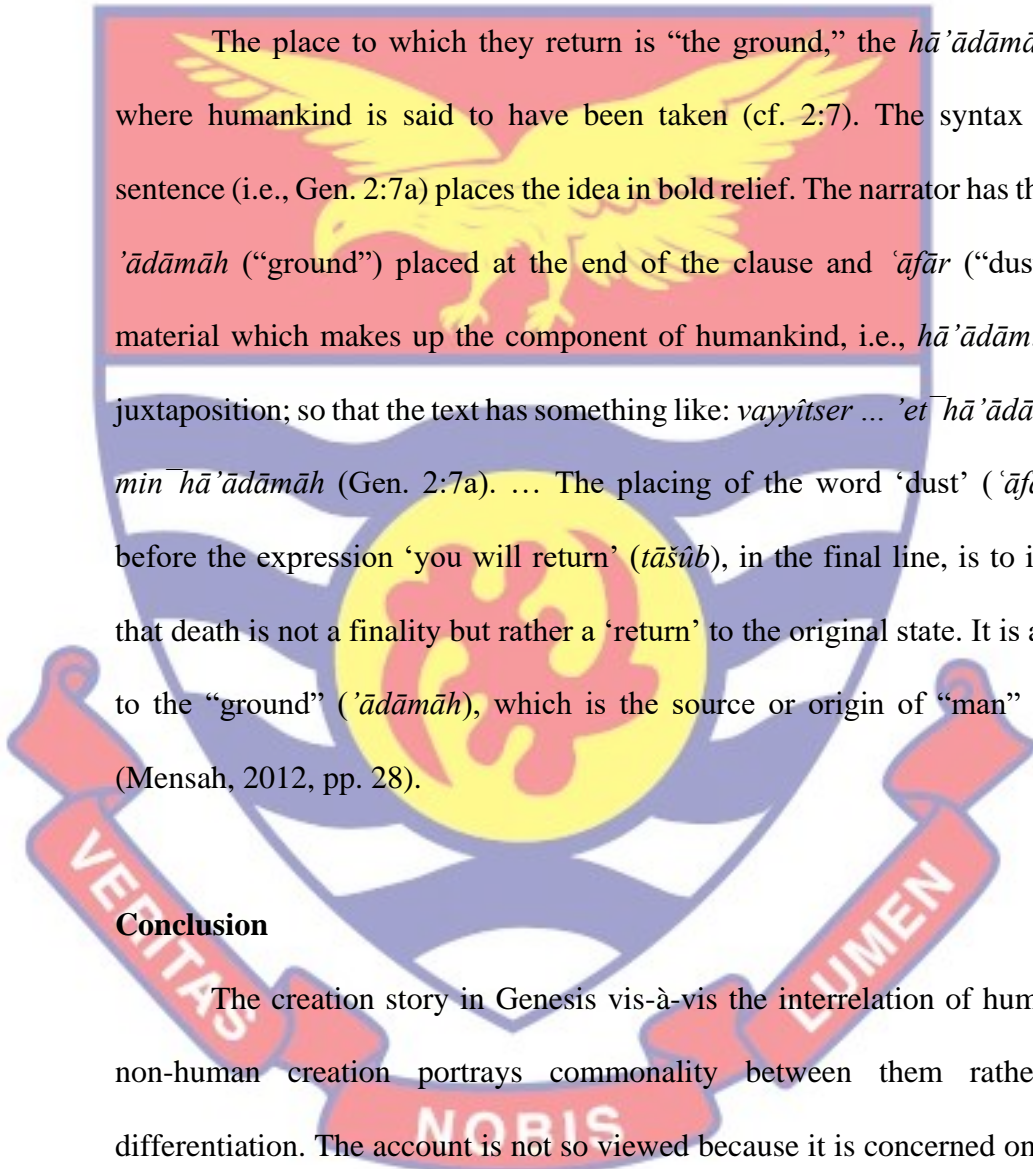
“Be fruitful and multiply and replenish the earth”). But whereas in 1:22 the author reports of Elohim simply giving a command, in 1:28 he adds “and God or Elohim said to them.” The point of emphasis here is that both humankind and non-human creatures share commonality in the creation story in Genesis because of the blessing of fruitfulness they both received.

Finally, another way the accounts show humankind as not distinct from the non-human creatures is having them both created from the same material. It is read of humankind to have been created “from the ground” (Genesis 2:7). The text reads: “*vayyîter ’ādōnay ’ēlōhîm ’et hā’ādām ... min hā’ādāmāh*”, translated as “And Jehovah God or *Elohim* formed the man ... from the ground.”

Similarly, the non-human creatures are also read of as having been formed “from the ground” (Genesis 2:19). The text here too reads: “*vayyîter ’ādōnay ’ēlōhîm min hā’ādāmāh kōl chayyat haśśadeh v’ēt kōl’ōf ....*”, also translated as “And out of the ground Jehovah God or *Elohim* formed every beast of the field, and every bird of the heavens...”

It is however clear in the accounts that mention is made of dust in the formation of humankind, but no mention is made of dust in the formation of the non-human creatures. The text in Genesis 2:7a reads: “*vayyîter ’ādōnay ’ēlōhîm ’et hā’ādām āfār min hā’ādāmāh*”, translated as “And Jehovah God or *Yahweh Elohim* formed the man of dust from the ground.” The mention of ‘dust’ in the formation of humankind is the only difference identified in this comparison. And even here, the difference comes to play to point out the infinite nature of humans’ existence on earth. Humans are mortal beings, liable to die one day.

Since human beings are not immortal beings and live but a few days (Job 14:1), the author of the Book of Genesis says that they shall “return to the ground, since from it you were taken, for dust you are and to dust you will return” (Genesis 3:19). This return of humankind to “the ground” is excellently analyzed by Mensah:



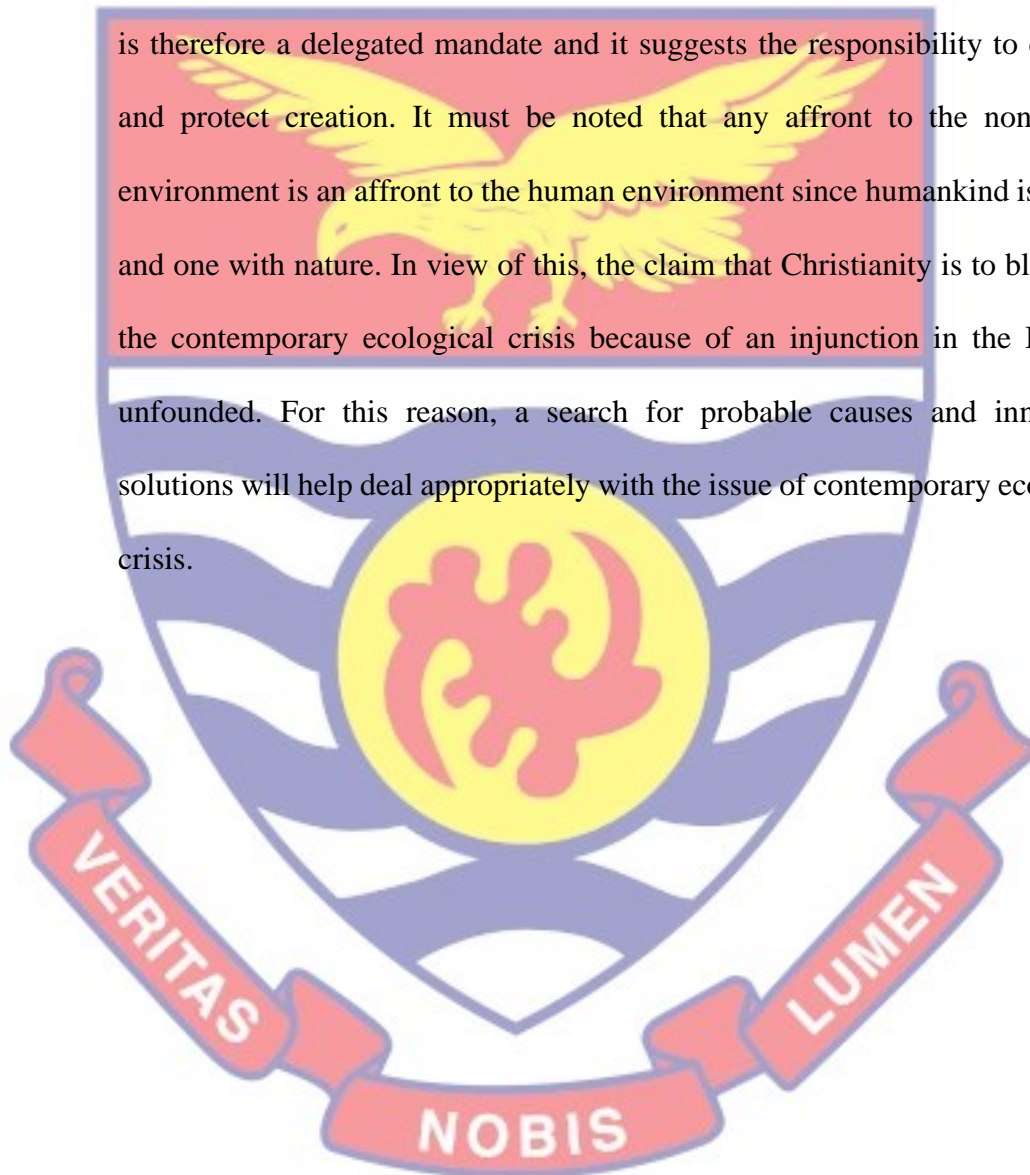
The place to which they return is “the ground,” the *hā’ādāmāh*. It is where humankind is said to have been taken (cf. 2:7). The syntax of that sentence (i.e., Gen. 2:7a) places the idea in bold relief. The narrator has the word *’ādāmāh* (“ground”) placed at the end of the clause and *’āfār* (“dust”), the material which makes up the component of humankind, i.e., *hā’ādām*, put in juxtaposition; so that the text has something like: *vayyîtsēr ... ’et hā’ādām ’āfār min hā’ādāmāh* (Gen. 2:7a). ... The placing of the word ‘dust’ (*’āfār*) just before the expression ‘you will return’ (*tāšûb*), in the final line, is to indicate that death is not a finality but rather a ‘return’ to the original state. It is a return to the “ground” (*’ādāmāh*), which is the source or origin of “man” (*ādām*) (Mensah, 2012, pp. 28).

### Conclusion

The creation story in Genesis vis-à-vis the interrelation of human and non-human creation portrays commonality between them rather than differentiation. The account is not so viewed because it is concerned only with human creatures, discounting the rest of creation. Human creatures are created “in the image and likeness of Elohim” to *order, rule, and care for* the other creatures as Elohim himself, the Creator, would treat them. So, the view that humankind is created “in the image and likeness of Elohim” and the mandate to

“subdue the earth” and have “dominion over” all other creatures is therefore about exploitation is out of place. The idea, however, connotes humankind’s responsibility to nurture and care for creation. The text under study proposes that human beings were created as God’s representatives with an express purpose to exercise royal dominion over the creation. The mandate given to man

is therefore a delegated mandate and it suggests the responsibility to care for and protect creation. It must be noted that any affront to the non-human environment is an affront to the human environment since humankind is part of and one with nature. In view of this, the claim that Christianity is to blame for the contemporary ecological crisis because of an injunction in the Bible is unfounded. For this reason, a search for probable causes and innovative solutions will help deal appropriately with the issue of contemporary ecological crisis.



## CHAPTER FOUR

### SOME CAUSES AND SOLUTIONS OF ENVIRONMENTAL CRISIS

#### Introduction

The previous Chapter was the main discussion and contribution Chapter of this research. It had three main parts, the story of creation in Genesis, interpretation and analysis of the text, and conclusion. This Chapter is aimed, on the one hand, at considering some probable causes of contemporary environmental crisis, and on the other hand, at proposing innovative solutions or interventions to alleviate the contemporary ecological crisis. The Chapter concludes with contributions by some groups and institutions, including Christians in helping to remedy the situation.

#### Suggested Causes of Contemporary Global Environmental Crisis

From White's indictment and the subsequent discussions and arguments by scholars, it has been revealed that the causes of ecological crisis do not originate from a single root. In other words, as it has been established in the previous chapter, the creation account and Elohim's injunction to humankind contained in the Judaeo-Christian scripture cannot constitute the root cause of contemporary global ecological crisis. How then did we get here? A number of factors may account for the current global environmental crisis other than the Judaeo-Christian scripture. For the sake of this study, I have identified and discussed four of such potential causes proposed by scholars. These are world economic systems, population and society, cultural tradition and ethnic consciousness, and alienation of science and technology.



### a. World Economic Systems

The modern Industrial Revolution and Capital Systems have created a pattern which focuses mainly on economic growth and development without recourse to environmental issues. The pursuit by these industrialized economies have greatly influenced global environmental resources. A research has disclosed that the developed countries have controlled over 85% of global resources with 15% of population, whereas more than 60% of the consumer goods produced are exported to advanced countries. 95% of world's toxic waste are produced in the 20 plus industrialized countries (Liang, 2009).

In some technologically advanced countries such as UK, USA, and Germany, the post-Industrial Revolution has witnessed giant and rapid strides in economic development. These developments, however, are associated with some serious global environmental issues that threaten various life forms on the earth including human beings.

The traditional economic development is noted for its primary target of achieving growth in total output value, increasing material wealth and maximizing profit. With respect to the traditional economic development, people sacrifice resource consumption and environment damage in return for economic growth, irrespective of resource utilization efficiency (Jianping *et al.*, 2014). The ecosystem then becomes exposed to destruction because of lack of rational resource development and utilization. Two things are noted here. First, industries have overutilized renewable resources to the level that does not allow for regeneration rate and much has not been done also to produce their substitutes, giving rise to full consumption of these non-renewable resources. Second, the poor awareness of ecological environment protection coupled with

the motivated quest for maximization of economic gains have legislated adoption of low-cost production methods that are detrimental to the biosphere. This simply indicates the extent of neglect for pollution-free technologies and scientific environmental resource conservation.

On the other hand, it has been discovered also that the capitalist economic system in advanced countries and the unbalanced international order under that system are the fundamental causes for global environmental problems. According to Jianping *et al.* (2014), ecological socialists contend that capitalism is the fundamental cause for Western or even global ecological crisis and environmental problems. This point is substantiated by the fact that the capital economies of the world keep on expanding without limitation. The operation of this economic system characterized by trends of unlimited accumulation of capital vis-à-vis the leading reasons of its maximization of added value indicates impetuous consumption of earth's resource and exploitation of natural environment. According to Yu Jin-yao, capitalist system has facilitated what has come to be known as "ecological colonialism" (Jin-yao, 2009, pp. 6).

It has been argued that the unsustainable trend of consumption and production, predominantly in industrialized countries, is the root cause of the sustained worsening of the global environment due to the industrial and economic agendas they pursue. It is on record that since the Industrial Revolution in the eighteenth century to 1950, these industrialized countries had contributed for 95% of CO<sub>2</sub> emission into the atmosphere. The report further claims that between the 50 years from 1950 to 2000, emission by developed countries still accounted for 77% of world total (Jianping *et al.*, 2014).

These industrialized countries are blamed for two main reasons. Firstly, the countries are responsible for the ecological cost of spoliation and expansion and departure for the past three centuries of industrial civilization. Secondly, the countries are responsible for the ecological loss owing to a high rate of global production and consumption within the past few years. Additionally, it is asserted that the advanced countries capitalize on their dominance in economic globalization to shift the ecological and resource crises to the less developed countries. Nonetheless, the developing countries cannot entirely be exonerated from the causes of today's environmental problems believed to have been largely created by the economic and industrialization systems of the developed countries.

#### **b. Population and Society**

A survey report indicates that the earth is recording an extreme growth of human population in spite of ecological environment load-bearing constraint which is another significant cause for global environmental crisis (Jianping *et al.*, 2014). According to Oosthoek and Gills (2005), there has been an unprecedented growth of the human population and the world economy for the past sixty years. Consequently, this phenomenon has contributed immensely to the series of environmental crises prevailing at every corner of the globe. Research has shown that within the same fifty years between 1950 and 2000, the world recorded an economic growth of 2.5 times in terms of Gross Domestic Product (GDP). This feat is attributed largely to the phenomenal global population growth of human species, which witnessed an increase from 2.5 billion in 1950 to over 6 billion in 2000 (McNeill, 2000). In fact, the world population was estimated to have reached 7 billion in 2011 (Jianping *et al.*).

This phenomenon, without doubt, has serious repercussions on, not only human society and economy, but more importantly the environment as a whole.

Citing India's population as an example, Harold Coward explains that it came to a time that epidemics and famines, high rate of infant mortality, and premature death hit the country which kept the population levels down.

Consequently, according to Narayanan (as cited in Coward), the dharma texts that stress the responsibility of procreation were formulated. However, all this has changed now with an introduction of modern medicine and India's population has quickly risen to levels that are causing grave ecological harm (Coward, 1997).

There is a causal relation between an increasing population growth and overuse of the environment's finite resources. This relationship in the long run leads to environmental crisis. The global resource environment has suffered severe pressure as a result of increasing population size and excessive natural growth rate of human population. The continuous rise of population triggers more demands and consumptions of material goods of the earth. As these demands and consumptions exceed the limitation of the supply of environment's resources, serious crisis then erupts. Most of the environmental problems we are confronted with in this 21<sup>st</sup> century, such as air pollution, scarcity of ecological resources, heaps of household garbage, and few more others, are all concomitant with rapid growth of human population.

In examining the environmental conservation and preservation of cultural heritage as assets for tourism development in the Akyem Abuakwa traditional area of Ghana, Sarfo-Mensah, Owusu-Bi, Awuah Nyamekye and Amisah (2014), for example, make a notable observation. They observe that the

rapid population growth in the Akyem Abuakwa traditional area, in particular, has accelerated pressure on land for farming activities with its associated environmental exploitation and note with concern that population-related pressures on land and other natural resources are having impact on traditional natural resources management. Additionally, the agricultural practice of following, they observe, has been minimized as farmers now embark more on continuous cropping as a result of many people now farming on the same piece of land previously farmed on by a few people. Growing demand for land and influx of migrants, in their view, are the main cause of extension of agriculture to marginal lands, and that this demand for land and the influx of migrants pose serious threats to forest conservation, particularly in the Atewa Range and other sacred sites.

Another dimension of human population as a critical cause to the global environmental problems has to do with people's awareness of the natural world and variations of practice in the different periods of human society. Since population size was small in the olden days, productivity was found to be relatively low and the environment was not much disturbed. The major human activities in this primitive age mainly centred on collection of natural food and hunting expedition. Right from this stage, human activities were diversified to focus on agricultural civilization which led to improved productivity, rapid growth of population, reinforced human's ability to transform nature, and development and utilization of resources such as land, forest and water (Jianping *et al.*, 2014).

The environment started experiencing destruction and intense harm during this era. As indicated earlier in 4.1.1, the birth of industrialization engineered by science and technology led to increased productivity which in turn resulted in maximization of profits. This era saw a rapid expansion of population size and an attempt by human beings to exploit nature for accumulation of material and wealth at the expense of over development and environmental problem that would emerge. Attitudes and activities of this nature enhance ecological deterioration which turns to threaten lifeforms of this globe. The way forward to deal with such crisis is for humankind to become conscious of ecological civilization where rapid growth of population will be controlled while resource and sustainable development of environment will be given due consideration.

### **c. Cultural Tradition and Ethnic Consciousness**

Another important factor influencing or bringing about environmental problems of today is cultural tradition and ideological consciousness. It is estimated that economic development and ecological environment have been influenced by certain cultural traditions. There is no doubt that many cultural traditions and practices in the world hold worldviews that enhance or promote preservation and conservation of environmental resources. Nonetheless, there are equally traditions and practices that also compromise environmental preservation and conservation. The kind of environmental worldview a community holds clearly indicates its attitudes towards it. As Lynn White notes, "what people do about their ecology depends on what they think about themselves in relation to the things around them" (White, 1967, pp. 1205).

In a likewise manner, other scholars have indicated that when cultural and environmental assets of a particular area, as in several parts of many countries, are threatened with changes, they are likely to undermine their integrity (Sarfo-Mensah *et al.*, 2014). Some of such authorities posit that several complex and interrelated factors come to play when it comes to forces that account for negative changes in the environment. The issues range from commercial factors such as farming and logging, bush fires, the weakening of traditional institutions and the lack of governmental assistance.

Many countries over the world have agriculture as the backbone of their economy. This industry also contributes significantly to the exploitation of the forest vegetation in particular and the environment in general. In the 1995 *Agricultural Economic Report, number 703*, entitled “World Agriculture and Climate Change: Economic Adaptations”, Darwin, Tsigas, Lewandrowski and Ranases observe variations in the global production of agricultural produce. Also, in their book *Climate Change and Agricultural Vulnerability*, Fischer, Shah and Van Velthuizen (2002) make a similar observation. In both studies, it is indicated that agriculture is measured in the background of a broader sense of land use. These studies examine a realistic model competition of land resource distribution among different sectors as well as its consequent effects on agriculture. However, the production process may look appealing, Darwin *et al.* hardly indicate the potential effect of climate change on the biophysical world. Meanwhile, it is observed that the traditional farming practices of slash and burn and shifting cultivation which continue to be the predominant farming practices commonly associated with the developing countries pose serious threats to the forests as well as other living organisms whose habitats are in

those areas. Accordingly, these traditional farming practices can be potential contributing factors to environmental problems which in the long run lead to ecological crisis.

Similarly, Sarfo-Mensah *et al.* (2014) emphasize that noncompliance with local rules and regulations on certain human activities in some communities pose a major threat to the local environment. They cite, for example, the lack of adequate backing from central government as a major challenge militating against the efforts of the enforcement of traditional rules on natural resource management which affects the environment. It has also been observed that in some traditional communities, people who violate environmental rules do not receive appropriate sanctions as deterrents to others. Sometimes too, delays in prosecuting offenders does not deter recalcitrant encroachers of forest reserves which in effect, undermines the efforts at conserving the environment in a traditional area (Sarfo-Mensah *et al.*).

Some scholars also put the blame on Christianity and Islam especially regarding their attitude towards traditional beliefs and taboos that preserve and conserve the natural environment. Some of these traditional beliefs and taboos, like observation of non-farming days, farming near or along banks of water bodies and in sacred sites, are aimed at protecting the natural environment (Sarfo-Mensah *et al.*). Nonetheless, Christianity and Islam are noted for embracing attitudes and values that seek to promote the well-being of humankind and nature. For example, it is read in Genesis 2:15 that, “The Lord God took the man and put him in the Garden of Eden to work it and take care of it.”



In another instance, “individualism” has been identified as the predominant issue of cultural tradition in both UK and USA. It is indicated that the concept *individualism* after the 1980s has been embraced as core value which puts humankind as the pivot of society and warrants individual to pursue economic benefits. Scholars assert that this ideology which became a typical worldwide ideology, absolutely anthropocentric in nature, is associated with ecological environment (Jianping *et al.*, 2014). In line with this, it is suggested that “in an increasingly fragile world environment, the emphasis on human rights must be on the ethical basis of our lives, rather than on individual rights per se” (Juss, 1997, p. 121). According to the 2013 GEC report, the cultural conscience that “spares no sacrifice of ecological environment for egocentric purpose makes global environmental protection consciousness generally weakened and causes many environmental issues” (Jianping *et al.*, p.13). Cultural traditions and ethnic consciousness that are found to be detrimental to ecological environment should be revised or substituted to enhance environmental sustainability.

#### **d. Alienation of Science and Technology**

Finally, alienation of science and technology has also been identified as a major cause of contemporary environmental problems. It is held that the “advance of science and technology is double-edged sword that can not only benefit humans and promote social development, but also be accompanied with environmental problems that endangers the entire globe” (Jianping *et al.*, 2014).

A close investigation into the impacts of nuclear pollution, fertilizer, plastic material, synthetic fiber and automobiles was made by Commoner and Capra. The findings of these scholars made them argue that modern science and

technology do not only generate economic benefit, but also are the root cause of pollutions that destroy ecological environment.

Likewise, Ji Zhen-hai (2007), and Liu Jian-tao and Jia Feng-zi (2012) have observed that science and technology have critically destabilized, or may be even disturbing the ecosystem upon which all lifeform species depend. As intimated earlier, the emergence of modern industrialization revolution aided by science and technology has played a significant role in polluting the natural environment.

However, many scholars disagree with the view that modern science and technology are the root cause of contemporary ecological crisis. These thinkers believe that modern science and technology, contribute but are not the root cause of the ecological crisis. Jianping *et al.* (2014), for instance, point out that alienation of science and technology, uncontestably, are a major cause for global environmental problems, but not the root cause. Meanwhile, it has been postulated that technological discovery in the area of environmental protection is crucial in solving global environmental problems. Scholars, therefore, advise that alienation should be sidestepped in the arena of technological development, so that science and technology can make positive contribution and realize unification of both technological development and the development of human society (Jianping *et al.*).

On the whole, these and many other reasons account for the current global environmental crisis. But the most fundamental cause above all is the unconscious of people about the essential role of environment in our life. According to Nguyen Thi Lan Chi (2012), our planet earth is fading away and our environment is getting destroyed at a faster rate. The facts are now clear that

our earth is being destroyed by polluting our air, water, the atmosphere without consciousness and conscience for repercussions of our actions. Appropriate and creative solutions and policies therefore need to be sought to remedy the situation. We need to secure and protect our environment to enhance our survival and that of other lives in the biosphere.

### **Suggested Solutions to Global Environmental Crisis**

In an effort to find appropriate solutions to correct the dreadful environmental crisis globally, the following five prescribed strategies, among others, have been suggested in this study.

#### **a. Alternative Sources of Energy**

One of the major causes of environmental pollution is the burning of fossil fuels to generate energy for various purposes. This form of energy production which creates serious harm to the environment can be addressed by resorting to renewable sources of energy. These sources which include wind power, wave energy and solar power are known to be much cleaner. Similarly, reduction of the amount of energy used by industries and individuals are also being encouraged in an effort to address the problem of environmental pollution.

It is, meanwhile, commendable that many energy experts are now encouraging many people to make good use of solar power in their homes and workplaces and refrain from the traditional ways of producing and using energy. A growing number of people, for example, nowadays use solar power produced from sun's energy to run their various electrical gadgets and also to warm their homes. Experts have observed that the production and use of solar energy in homes are more economical and earth friendly. Accordingly, the production and

use of renewable sources of energy are less expensive and more advantageous. They are also a good solution for checking or reducing environmental pollution which in turn address environmental crisis.

### **b. Promotion of Green Products**

In recent times, the use of agro-chemicals by farmers is on the ascendancy because they want to maximize food production and profit. The use of agro-chemicals like pesticides and herbicides, mostly by commercial farmers, cause grave harm to the environment. Apart from these chemicals being dangerous to the environment, their presence in organic foods can be detrimental to human health in their consumption.

However, the best way to curb the problem of environmental destruction in this manner is to encourage the use of green products. People must be encouraged to use organic foods that are grown without using such chemicals. Also, families are to be encouraged to make small gardens and grow their own organic crops and vegetables. In this case, such families or households can be helped to cultivate variety of crops and vegetables that are less capital intensive and also good for human health and the environment.

Additionally, we can shift from the use of wood from our forests for fuel to alternative sources of fuel. For example, we can now use Liquefied Petroleum Gas (LPG) as an alternative source of fuel to save our forest zones from depletion. This source of fuel must be affordable and always in constant supply. Also, afforestation, that is planting of trees in all depleted forest areas must be encouraged; whilst, stringent measures be put in place to protect our forest reserves.

Similarly, strict enforcement for use of green bags such as paper bags and re-useable shopping bags such as canvas fabric bags to replace the use of plastic bags will go a long way to protect the environment. A recent discovery of bio-degradable plastic material production as a substitute for the all-time numerous non-degradable plastic bags is a highly commendable innovation. On Thursday 7<sup>th</sup> November, 2019, Joy News Television (a popular Ghanaian media outlet) at its prime news at 7:00pm reported of four young Ghanaians who had been able to produce a bio-degradable plastic material from cassava. According to them, the new plastic material made from cassava can get rotten within six months after its discard unlike the common ones we use today which can remain in the environment for several decades or even centuries.

In fact, the rate at which plastic bags are flooding the environment in many countries today, particularly most African countries, is alarming. For instance, in Ghana there is no single day that one will return home from a shopping centre without carrying at least one plastic bag. It is obvious that when people go to the market to buy things, they always take one plastic bag for one thing. So much of modern life is centred on shopping and buying new items which contribute to environmental pollution. We can best reduce the harm caused to the environment if we promote green products and stop also littering the environment with plastic materials. But the way to escape the problem of plastic materials menace in the environment is to shift to the production and use of bio-degradable plastic materials.

### c. Promotion of Sustainable Agriculture

Environmentalists and other key stakeholders advocate for promotion of sustainable agricultural production in the wake of finding solutions to global environmental crisis. Despite the wide range of interpretations of what sustainable development means and the diversity of existing agricultural conditions, there is no consensus over the procedure it should assume or the primacies (Pretty and Howes, 1993). Sustainable agriculture has been explained to mean that which is ecologically sound, economically viable, socially just, humane and adaptable (Reijntjes et al., 1992).

According to Chris J. Barrow (2005), environmental experts can examine conflicts between agriculture and the environment, and other human activities, and suggest ways of reaching suitable solutions. It is observed that farmers frequently have conflicts of interest with conservation and environmental protection bodies.

Nevertheless, sustainable agriculture has enjoyed some support from bodies encouraging chemical-free organic farming and permaculture. It is worth noting that certain environmental protection bodies like the Soil and Water Conservation Society (USA) and many departments of the FAO have been embarking on promotion and research in sustainable agriculture for some time now. A number of experiments relating organic farms with non-organic are being carried out in the USA. It is scientifically proven that sustainable agriculture goes a long way to promote environmental protection. A typical example is the scientifically monitoring of areas of agricultural land for over a century by the UK Rothampstead Experimental Station.

#### d. Promotion of Recycling Waste

Generation of waste continues to be a major environmental problem all over the world. It is an undeniable fact that in Ghana, for example, several thousands of tons of waste are generated each day. As a measure to curb environmental problems which account for environmental crisis, proper waste management practices must be employed. In light of this, recycling waste seems to be the best solution for remained wastes.

Families, households, and individuals can be encouraged to do certain things to protect and preserve the environment. These include what has been termed the *3 Rs*, meaning reduce-reuse-recycle. This approach of handling wastes involves collection and sorting into different classifications of plastics, metals, glasses, organic wastes and the likes. Some of these waste materials can be recycled to produce new usable items. The effort of Jospong Waste Management Services, a subsidiary of Jospong Group of Companies based in Ghana, is commendable. This company has carved a niche for itself in finding solution to waste problems in some developing countries like Ghana. Waste problems, though, have not been completely solved in Ghana, yet waste management has become more efficient in Ghana and some parts of Africa as a result of their innovative approach and influence in waste treatment (Jospong, 2019).

If all wastes are recycled, there will be a substantial reduction in the amount of wastes in our environment. Aside increasing problems of waste in developing countries, there is an equally increasing number of unemployed in society. These unemployed citizens can create their own jobs from waste. They can move from house to house collecting wastes at a fee and also separate them.

The separated wastes can then be sold to recycling factories or companies for another fee. This will enhance their economic and financial lives. So, the more wastes they collect, the more money they earn. This solution will help solve a dual problem, namely, to protect environment and also to create job for the unemployed.

#### **e. Promotion of Eco-Tourism**

Another suggested tool that can be helpful in finding solution to global ecological crisis is eco-tourism. Many people today prefer taking their vacation or leave holidays to places of interest in other countries or communities. While they are in those places, they tend to visit favourite sites with resorts and other modern recreational centres. Obviously, those countries or communities get more income to boost their economy. However, the environment of those places also suffers in diverse ways because of large numbers of people who patronize the sites.

Meanwhile, eco-tourism appears to be a significant way to protect the environment. Ecotourism involves visitation by travellers to areas of spectacular natural beauty, seeing animals in their natural habitats such as the Fiemo Monkey Sanctuary in the Bono East Region of Ghana, and having encounter with people of local communities. In other words, responsible ecotourism includes programmes that curtail the negative parts of conventional tourism on the environment and improve the cultural integrity of local people. According to Jenny Green (2018), ecotourism provides support through employment and other means, but not at the expense of the local environment. Ecotourism therefore offers protection to natural habitats and pristine environments. In a more significant way, ecotourism gives credence to environmental protection,



conservation and restoration of biological diversity and sustainable use of natural resources. The essence of attractiveness of ecotourism should make countries preserve pristine sites and create other national and wildlife parks. For example, in Hawaii, new legislation has been passed to preserve the Hawaiian rainforest and also to protect native species. The coral reefs within the islands and the marine life that depend on them for survival are also protected. This has led to Hawaii becoming an international centre for research on ecological systems. The main motivation for enacting these laws is to promote ecotourism through preservation of the islands.

In a related manner, many developing countries have their wealth often hinged on to natural resources like forests, minerals and land which can be used for agriculture. Hence, destruction of these resources means destruction of the habitats of many different living organisms and beautiful natural landscapes. It is clear that ecotourism enables countries and local communities to build their economies without causing damage or destruction to the environment. Through ecotourism, funds are often raised to finance protection and management of environmental resources.

On the whole, the promotion of recycling, energy efficiency, water conservation and creation of economic opportunities for the local communities forms an integral part of ecotourism. Thus, ecotourism can be an effective tool for addressing global environmental crisis and as a result, it must be promoted globally.

#### **f. Intensive Advocacy and Public Education**

Though many creative solutions for addressing global ecological crisis can be propounded, yet they may seem inadequate without taking into consideration the need to educate and sensitize people on the repercussions of environmental destruction. More importantly, there is the need for an intentional and intensive advocacy for environmental care and protection. Norman C. Habel expounds that “the complexity of the current ecological crisis has stimulated the rise of a new Earth awareness where all forms of life are seen as endlessly dependent on the complex relationships that allow life to flourish on Earth” (Habel, 2000, p. 26). People need to know the environmental threats and must take more responsibilities for the environment crisis facing the world today. To tackle this kind of problem, there cannot be any better solution than intensive advocacy and education on dangers of environmental exploitation. Also, people and communities must be educated on the vital role of the environment through periodic short documentaries on national televisions, social media platforms, and also, making it essential part of school curriculums. This would be a more interesting way to study about the environment and to help protect it.

On the whole, it is obvious that the magnitude of the environmental crisis is not beyond human capability of addressing it. People have to be conscious of what they have done and make positive acts to environment. Apparently, our life is in our own hands and, therefore, we must all take responsibilities for the disturbing impact on the environment we live in. Finding a lasting solution to environmental crisis is doable.

### Interventions made in Measures Taken to Correct the Ecological Crisis

A profound statement such as one given by Daly ignites serious awakening from ecological sleep to action. He states that:

The facts are plain and uncontestable: the biosphere is finite, nongrowing, closed (except for the constant input of solar energy), and constrained by the laws of thermodynamics. Any subsystem, such as the economy, must at some point cease growing and adapt itself to a dynamic equilibrium, something like a steady state (Daly, 2005, p. 80).

According to Oosthoek & Gills, the 2005 special issue of *Scientific American* journal devoted to the global state of the environment and the future prospect of avoiding environmental catastrophe had a simple message: “Humanity, and with it all life on earth, stands at a crossroads” (Oosthoek & Gills, 2005, p.283). Authors of this edition of the journal in discussing population pressure, poverty, species diversity and environmental economics, among other issues, cautioned that if the signs of serious environmental degradation continued to be ignored, then humanity would find itself facing a momentous global environmental crisis (Oosthoek & Gills).

It is, however, commendable to state that the clarion calls for timely measures to correct the worrying situation of global ecological crisis warned against is being heeded to by governments, groups and institutions including Christianity. David G. Horrel, for instance, has observed that much attention has been given to this swiftly most discussed subject matter of global warming and its accompanying effects on all life forms (Horrel, 2010).

## Contribution of Governments

Since the 1970s, the warnings that humanity and the entire biosphere were heading towards ecological disaster, have been heeded to by governments and other environmental actors. Many governments or countries started introducing measures and legislation to deal with the problems of local or regional air and water pollution as well as the contamination of soils.

According to the 2013 report on Global Environmental Competitiveness humankind is now “striving into the historical process of postindustrial society and is trying to reach rebalance with environment in later stage of development (Jianping *et. al*, 2014, p. 3). In this report, the editors suggest that all countries need to perform respective duties and obligations in environment governance. This can be achieved in joint efforts to plan economic development, social progresses and environment protection to realize mutual wins and sustainable development of the world and to create an earth homeland for harmonious co-existence of humankind and environment.

In view of this, governments now have understood the potential catastrophe postured by the current environmental situation. Juss reports that the approach adopted by major countries like the United States and the United Kingdom presents useful paradigms to survey the interventions by other nations in dealing with the problems of environmental health. These two countries undertook important initiatives in this field to confront the situation. According to Juss, “The United States has targeted issues relating to environmental health, whereas the United Kingdom has focused on some potential effects of climate change, including the adverse effect on health” (Juss, 1997, p. 124).

Similarly, there has been an increasing worry among forest experts along with ecological activists and social groups about the rate of global deforestation. Mondal reports that Food and Agriculture Organization (FAO), United Nations Development Programme (UNDP), World Bank and other government and non-governmental organizations (NGOs) have stated their view about deforestation and proposed strategies for protection and conservation of forests (Mondal, 2018). Citing India for an example, Mondal notes that the Chipko Andolan and Narmada Bachao Andolan are the two renowned movements which have created awareness among the people to raise a common voice against the ruthless depletion of forests.

Bucknall et al. (2000) also point out that reclamation of Sodic Lands in Uttar Pradesh (UP) in India yielded a positive result. It is estimated that about 1.2 million hectares or 10% of the net cultivated area in UP is sodic (excess salt), and 95% of the landowners in sodic areas are small-scale farmers with acreage size of less than 1 ha. It is, however, stated that by 1989, the Government of India and the state government of Uttar Pradesh had effectively reclaimed 157,000 ha of this land. It is likewise reported that in 1997, the International Development Agency (IDA) assisted the Government of Zambia with a \$10-million loan to set up an environmental support programme to better manage environmental resources in the country. Among other things, the IDA financed the establishment of a pilot environmental fund which particularly targeted poorer settlements with the aim of providing an incentive mechanism for the promotion of environmentally sound community-based projects.

According to Mat McDermott, in 2008, “Brazil announced that rates of deforestation in the Amazon increased 3.8% over the previous year and that it would be taking steps to crack down on illegal logging, land clearing (sometimes by burning) and illegal settlements” (McDermott, 2008, p. 2). Brazil also came up with an initiative of the *Amazon Fund* to solicit international financial supports to help finance anti-deforestation efforts in the country. Additionally, McDermott states that Brazil has declared its intention to reduce deforestation by 70%, or about 6,000 square kilometers per year. The Environment Minister of Brazil, Carlos Minc, per a BBC report, explained that the plan would have the following effect: “Just in terms of avoided deforestation in the Amazon, the plan foresees a reduction of 4.8bn tons of carbon dioxide that won't be emitted up to 2018 - which is more than the reduction efforts fixed by all the rich countries” (McDermott, 2008).

Despite the fact that some countries are doing well with the reclamation of the exploited environment, it seems a few others are fighting a lost battle. For instance, in Ghana, the Forestry Commission, a government agency, reported in 2016 that nearly 80% of Ghana's forest resources under state management had been lost to illegal logging activity since 1990 (Asiedu, 2019). With clearing for cocoa farming being a leading cause of deforestation, mining has been identified as the biggest threat. According to Asiedu, illegal small-scale mining, known in the local parlance as “galamsey” has caused massive destruction to the environment which would cost the government about \$29 billion to restore. Sensing the looming danger emanating from these ruthless acts of environmental exploitation, the government in 2017 imposed a ban on all small-scale mining activities which was later lifted a little over a year of its

enforcement. The inter-agency committee mandated to oversee compliance of this environmental protection measure has been tagged with corruption scandal.

It can be established that the extent of international effort to address global environmental problems is outstanding, “especially in the context of uncertainty, long-time horizons, and disjuncture between location of cause and effect (especially across state boundaries)” (DeSombre, 2011). It is a notable fact that the fight against environmental crisis in the past few decades has been a challenging one. However, the ability of the international community, coupled with some countries’ major environmental policy directions and interventions, to rectify at least some serious global environmental problems under certain restricted conditions has been remarkable.

### **Contributions of Christian Organizations or Institutions**

Kwadwo Boateng, citing Obeng (1980), intimates that the planet earth is known to be the only planet on which life can exist (Boateng, 2012). This therefore presents the earth as a crucial planet because “we depend on, and draw from resources which have evolved over millions of years and which answer our specific needs which make life possible” (Boateng, 2012, p. 10). According to James Limburg, the planetary crisis has dared that “It is time for the churches to think about what the Bible says about our connectedness to the natural” (Limburg, 1991, p. 129).

As mentioned earlier, Wells notes that “the whole planet is now one economic community, and the proper exploitation of its natural resources demands one comprehensive direction” (Wells, 1946, p. 232). Likewise, White’s statement that “what people do about their ecology depends on what they think about themselves in relation to the things around them” (White, 1967,

p.1205) is thought-provoking one. He further indicted that “since people learn how to think about things from religion, we should look to the religious worldview accompanying modern technological society, which means the prevailing cosmology learned from medieval Western Christianity” (White). The heading of Ronald A. Simkins’ article also calls to mind Christianity’s impact on ecological crisis which states: “Can religion contribute to a better, more ecologically balanced treatment of the environment” (Simkins, 2014). Christianity can be credited with some amount of positive contribution to global ecological crisis, though it has been blamed for its root cause.

This claim has been buttressed by Simkins (2014) who maintains that even though there are assertions that religion, and in this case the Christian faith, has contributed substantially to the on-going ecological and economic crisis, ecclesiastical community has made a remarkable practical response to the crisis. Simkins carefully examined the theological orientation of Nigerian ecclesiastical community as a major influencing feature which enhances a sustainable praxis for bettering prevailing crisis of ecological and economic injustice.

The Christian Association of Nigeria (CAN) as a Christian religious body organized a seminar in Abuja in 2010 with the theme “The Church in mission as an agent of transformation.” At the said seminar, Ime Okopido presented a paper titled *Church and environment*. In his presentation, Okopido (2010) classified the religious leaders and the entire Christian community as ‘stewards of God’s creation’ and further charged them to make a meaningful contribution to the amelioration of the ecological crisis and its adverse effects on the living conditions of Nigerians (Agbiji, 2015). Agbiji (2015) has hinted



that Okopido's (2010) presentation gingered the CAN to effectively embark on significant agenda towards addressing ecological challenges. This move is spiced by Gosling's (2010) proposition that the need for a reliable ecumenical theology with respect to ecological and economic justice which is culturally sensitive to African norms must prevail. The development of such a theological framework has been beneficial for the promotion of decisive ideological orientation useful for sustainable ecological and economic justice praxis.

The World Council of Churches (WCC) as a world-wide Christian religious body has also contributed immensely to the fight against global environmental problems and ecological crisis. It has been very instrumental in placing the issue of climate justice on the world's agenda, even before the Earth Summit in Rio de Janeiro in 1992 that considered the UN Framework Convention on Climate Change.

According to Stephen Brown, "Churches and religious leaders are at the forefront of efforts to mobilize action for a legally binding agreement on the world's climate at the United Nations Climate Change Conference to be held in Paris at the end of 2015" (Brown, 2015, p. 1). To further demonstrate their commitment to global environmental issues, its 2015 environmental programme was captioned "Care for Creation and Climate Justice".

It is an undeniable fact that the WCC has been raising series of environmental issues for the past four decades which have not been trumpeted globally. Brown claims that the Council embarked on an action which helped to galvanize the ecological movement in communist East Germany. He asserts again that this move ended up with the emergence of independent ecology groups in the 1980s as one of the forms of opposition that culminated in East

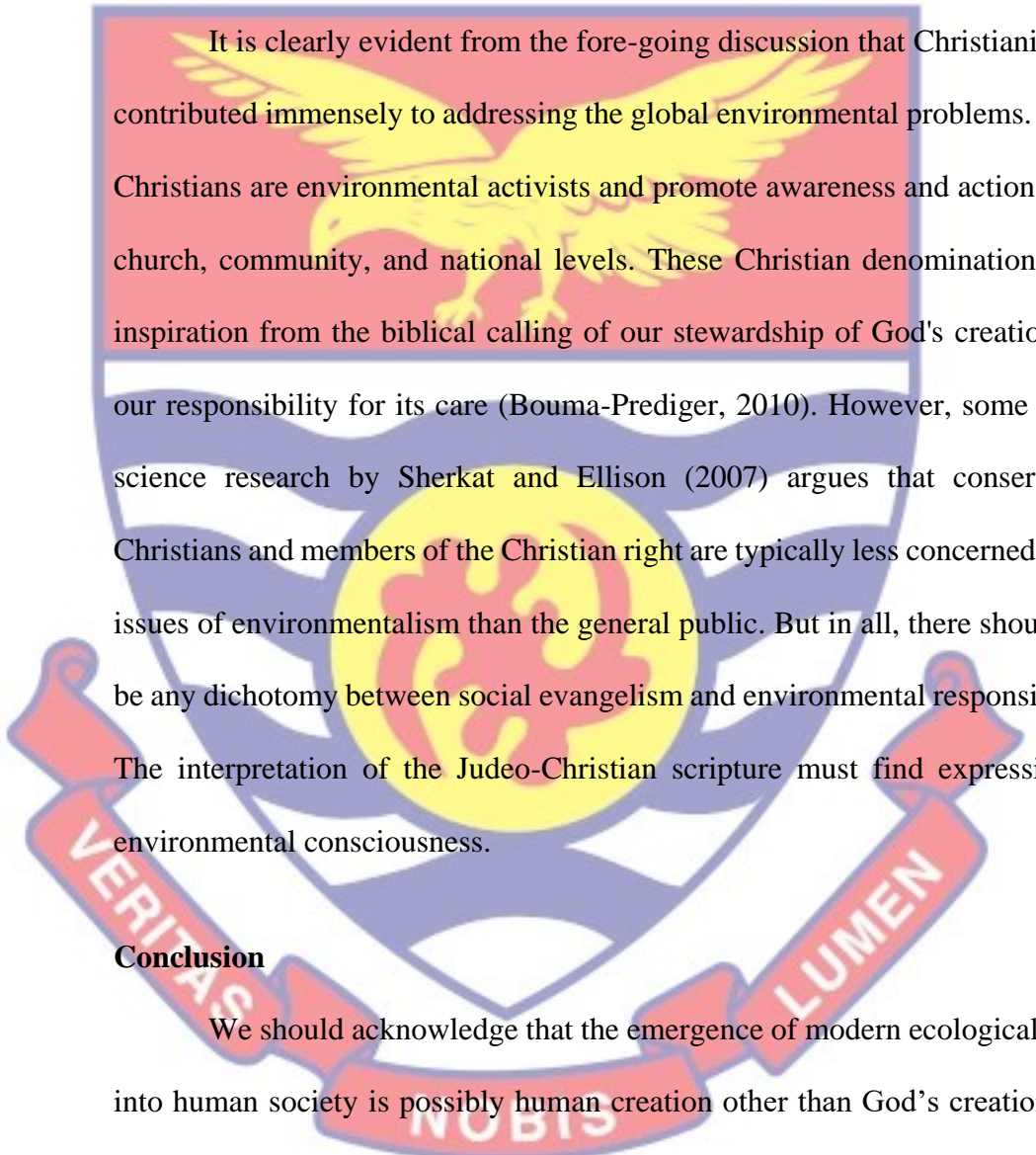
Germany's 1989 peaceful revolution (Brown, 2015). It is said that many Protestant churches provided such independent groups the platform to speak out on ecological matters defying state orders in often times.

It is on record that the WCC organized two important global conferences in the 1970s in the then German Democratic Republic (GDR), which emphasised growth of environmental awareness in the churches. The first conference which was held in 1974 in Bucharest, Romania, which was to focus on 'Science and Technology for Human Development', concluded with a call for a "sustainable and just society" (Brown, 2015). It is revealed that that was the first time the word sustainability had been applied to society in relation to the environment. The Bucharest conference was held at a time of an increased global environmental concern, after the UN Conference on the Human Environment held in Stockholm in 1972.

Since the 1970s to date, issues of environmental concerns have featured prominently on the agenda of the WCC. Brown indicates that subsequent to the Bucharest conference, "the GDR churches made the issue of ecology a standing agenda item on their Church and Society committee." Church groups began embarking on tree planting exercises and mass bicycles riding to drum home the environmental concerns. It is noteworthy that many church groups have been embarking on such exercises independently of the state for few decades now.

Christianity's concern about environmental issues also finds its expression in the establishment of institutions of ecological studies. In 2010, Loma Linda University, one of the Christians' largest universities, introduced the Loma Linda University Center for Biodiversity and Conservation Studies.

The goal of the center is to address the comparative lack of environmental concern among Christians by increasing awareness of environmental issues. The center features animal displays representing global biodiversity hotspots of special concern and also introduces visitors to original scientific research being conducted in the school's biology, geology and natural sciences departments.



It is clearly evident from the fore-going discussion that Christianity has contributed immensely to addressing the global environmental problems. Many Christians are environmental activists and promote awareness and action at the church, community, and national levels. These Christian denominations take inspiration from the biblical calling of our stewardship of God's creation and our responsibility for its care (Bouma-Prediger, 2010). However, some social science research by Sherkat and Ellison (2007) argues that conservative Christians and members of the Christian right are typically less concerned about issues of environmentalism than the general public. But in all, there should not be any dichotomy between social evangelism and environmental responsibility. The interpretation of the Judeo-Christian scripture must find expression in environmental consciousness.

### **Conclusion**

We should acknowledge that the emergence of modern ecological crisis into human society is possibly human creation other than God's creation. For this reason, therefore, we come to realise the meaning of human creativity and the footprints that rudiments of creativity have bequeathed to us in our modern times. In other words, the ecological crisis presents us with a real natural disharmony and also brings about a discordant relationship between nature and humanity as well as nature and God. However, the problems of modern

ecological crisis never stem from the fundamentals of Christian tradition as suggested by some scholars. Admittedly, these criticisms, suggestions and debates have contributed positively to the development and shaping of academic fields of environmental ethics or consciousness as well as religious responsibilities for the global ecological crisis.

As it has been indicated by the discussions in this chapter, factors that account for the causes of the contemporary ecological crisis are varied and complex in nature. As far as this study is concerned, no attempt is made whatsoever to solve this complex problem of global crisis. However, it aims at, among other things, contributing to possible measures of curbing the crisis through national, cultural and religious interventions.

Although, environmental consciousness is gaining momentum nowadays more than ever among governments, Christian organisations or institutions, environmental managers, and stakeholders in the development industry including individuals, special interest groups, and many more; more need to be done. The process of development occurs in the environment, using resources, generating waste and causing other impacts. Serious efforts must be put in place to plan and control the development process and its impacts on nature. To achieve this dream, we must comply with the proposed solutions for addressing the global ecological crisis. It is hopeful that humanity can control their development, stretch nature to optimise resource use, and to circumvent environmental catastrophe.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

#### Introduction

Human behaviour and actions are always influenced by one or several factors. These factors can be physical, spiritual, cultural or religious. Modern humanity finds himself in the midst of an era where he is confronted with a tragic global ecological crisis which has never happened before in the history of human society. In an attempt to trace how come we have reached this stage of global ecological crisis in human history, the Judeo-Christian tradition has been indicted to be responsible because their sacred Scripture mandates them.

This research project has provided an exegetical study of the text of Genesis 1: 26-28 in relation to the causes of modern ecological crisis. The study has further examined the state of the crisis and also suggested possible creative solutions to it. Of course, developments of human society do not occur in oblivion, rather they rely on an appraisal of and reflection on history. Appraisal of our history informs us of the kind of better future we may need and what measures to be put in place to enhance it.

#### Summary and Some Findings of the Study

Right from the introductory chapter, the study set the tone for the discussion of ecological debate with the view of bringing attention to the seriousness of contemporary ecological crisis. In 1967, White admonished the Judeo-Christian tradition that the human exploitation of nature is considerably more disturbing than we had assumed. Since this White's indictment, several discussions and arguments have been ensued by scholars resulting in divergent points of view. Meanwhile, this study has shown that the causes of modern

ecological crisis do not originate from a single root as postulated by White and other scholars. Nevertheless, the major challenging issue of Christianity with regard to this crisis has been exposed to lie in the interpretation of the text under study to mean either Christian stewardship or anthropocentrism. It is reasoned that modern context of interpretation of the text under discussion is inconsistent with the ancient texts' cultural setting (Conradie, 2010).

Since Christianity has been indicted and is also to be blamed for the modern ecological crisis, the Chapter Two established the meaning of ecological crisis and went further to examine the nature of the crisis. The chapter again identified and discussed key environmental issues and their associated impacts on all life forms in the biosphere. The question raised at the end of this chapter sought to find out if indeed it is Christianity which has brought the world to this state because of certain narrative features in the Genesis creative account.

In Chapter Three, the text under consideration, Genesis 1: 26-28, was studied and analysed from its historical perspective in order to provide some background knowledge and interpretation for the discussions of humans' relationship with nature. It came to light that the biblical basis of the human domination over nature finds its expression in the theological concept of the "God's image in man" in Genesis. Meanwhile, this understanding does not suggest that humanity should submit nature to humiliation or exploitation. Humankind are to treat nature as God himself would treat it. It was further revealed that as far as theological understanding and explanations are concerned, Christianity's acceptance of the concept of harmony between human and nature is conceivable. In other words, the concept of harmony is applicable not only to interpersonal relationships or that between human and God, but also

between human and nature. This dispels the notion that human and nature are at variance with respect to the position of nature and human attitudes toward it. The study also found that the Judeo-Christian Scripture gave much impetus to the harmonious relationship between humanity and nature.

Although, the Judeo-Christian Scripture promotes a harmonious relationship between humankind and nature; this study suggests adoption and modification of some traditional and ancient beliefs and practices, such as animism and prohibition of farming along rivers banks, to compliment measures to protect and preserve nature. The discoveries of these traditional and ancient beliefs and practices regarding ecological consciousness could ginger Christianity for a higher pursuit of right attitudes towards nature.

The Chapter Four explored in depth the causes and solutions of modern ecological crisis. In this chapter, a deeper exploration of some major interventions by governments and other environmentally-concerned bodies was also given. The chapter therefore contained a significant contribution of this research. It was discovered that factors that account for the causes of the contemporary ecological crisis are varied and complex in nature. The perception that the origin of the modern ecological crisis has a single source, which has been blamed on Christianity, has been disputed. The world economic systems masterminded by scientific and industrial developments have resulted in substantial improvement in the material world. More than ever, human beings have craved for modernity and technological advancement in most recent times. These moves, undoubtedly, have impacted human society with an appreciable level of convenience and quality of life.

However, industrial and scientific civilization coupled with modernity despite improving the quality and well-being of human life have also brought about the modern ecological crisis as a result of distortion of the harmonious relationship between humankind and nature. The chapter also identified rapid population growth and its associated expansion of human society as a major factor accounting for the modern ecological crisis. Further, it came to light that some traditional and cultural practices compromise environmental preservation and conservation. Over here, failure by human society to ensure compliance with local rules and regulations regarding environmental protection also contribute proportionally to the situation. The disharmony between humanity and nature has reached an alarming stage in modern society due to the factors discussed earlier and a few more others. This has come about due to our own unethical and immoral attitudes toward nature rather than scriptural inspiration or religious sanctioning. The critical nature and causes of ecological issues have been studied by various experts in order to salvage the situation.

This study did not make any attempt whatsoever to solve the complex problem of contemporary global ecological crisis. After an exploration of the causes, a number of possible solutions to address the situation were proposed as measures of curbing the crisis through national, cultural and religious interventions. Likewise, it was indicated that some governments and Christian organizations or institutions, such as the World Council of Churches, have made efforts in curbing the crisis. This shows Christians' readiness to play a significant role in addressing the precarious environmental crisis. The study argued that Christianity is ready to open its ranks to invite for support of any traditional beliefs and practices that have ecological wisdom. The integration of



this nature emphasised the less concentrated concept in Christianity with regard to its harmony with nature, and also with reflection of traditional Christian view on nature. The outcome of that integration in this chapter has produced an alternative view of modern human attitudes toward creation and a new dimension of the entire cosmos.

### **Contributions and Limitations of the Study**

Although, this research maintains that Christianity is not to be blamed for the root cause of the modern ecological crisis, yet it does not claim that it is a perfect religion with flawless religious teachings. In other words, Christianity like other religions has its own inherent weaknesses. For it to have positive impact on contemporary humanity with regard to their way of life, Christianity must tolerate criticisms and reinterpretation of its teachings. It must be humble to incorporate into its belief systems and teachings, ecological wisdom and philosophies contained in other faiths and religions.

The main contribution of this study is the exploration of Genesis 1: 26-28 to establish the meaning of the text from historical-critical background. This has helped to ascertain that this text does not warrant environmental exploitation as some scholars made us to believe. This means that the study has debunked the claim that it is this text in the Judeo-Christian Scripture that sanctions the exploitation of the environment leading to the modern ecological crisis. This, therefore, reduces the notion that Christianity is an anthropocentric religion. The second important contribution to the study is the introduction of an alternative perspective of the text which promotes human-creation relationship rather than the anthropocentric interpretation given to it. Human beings are stewards of God's creation and are therefore responsible for its protection and preservation.

The study has again provided a critical study of the possible causes of the modern ecological crisis and also suggested some creative solutions to it. Another important contribution of this study is the introduction of the concept of integration which encourages Christianity to appreciate African traditional and other religious beliefs and practices which contain ecological wisdom.

The main limitation of the study is the narrow scope of the scriptural passage for consideration. The whole of Genesis chapters 1-3, probably, ought to have been explored as a block to help with the critical study of humans' relationship with creation, but due to lack of space only an excerpt was considered. Furthermore, the study looked at the text in question only from the historical-critical perspective to make argument against the indictment that it sanctions environmental exploitation. Also, as indicated in this study, the modern ecological crisis cannot be attributed to a single cause or perspective. However, the study could not outline all the possible causes of the crisis under discussion. In likewise manner, time and space did not allow for exploration of other aspects of addressing the modern ecological crisis, for example politics, economics and environmental science, etc. Furthermore, the study just highlighted on the concept of integration of African traditional beliefs and practices which contain ecological wisdom into Christianity's view of environmental issues as an alternative view of addressing modern ecological crisis. Also, an in-depth discussion and merits of Christian stewardship or anthropocentrism were not given in the study. Finally, the study did not look comprehensibly at the modern ecological crisis from multiple and interdisciplinary perspectives.

## Recommendations for Future Research

It is an undisputable fact that the text under consideration, Genesis 1: 26-28, can be studied using a new or another methodology to promote environmental care which at the end can contribute to finding appropriate solutions to the problem of ecological crisis. Also, it is obvious that the current ecological crisis should be tackled from multi-dimensional perspectives and calls for interdisciplinary collaboration. Consequently, this study wishes to recommend some aspects for future research projects.

First and foremost, concerning Genesis 1: 26-28 and its relationship with contemporary ecological crisis, this study provides a historical-critical perspective understanding of the text. It is reasoned that there is no clearly stated causal links between religious ethics and environmental concerns and conduct outlined in any part of the Bible (Biel & Nilsson, 2005). For further research, this study recommends that researchers may employ alternative approach or methodology for a comparative study to advance the understanding of the correlation between Christian Scripture and environment. More so, this study would encourage researchers to bring out a comprehensive Christian Scriptural support for environmental preservation and conservation. Any future research in this area, should also endeavor to elicit Christian Scriptural obscured remedy for solving modern ecological crisis. Additionally, this study would like to suggest to future researchers the need to employ subtler multi-dimensional and interdisciplinary approach in finding solution for the current ecological crisis. Similarly, inter-religious studies on ecological issues are being encouraged for further research in an attempt to find solution to modern ecological crisis. These studies may include Christian-African Traditional Religion, Christian-Muslim,

Christian-Hindu, etc. Finally, there is no dispute that other subjects, such as Social Studies, Bioscience and Economics make significant contributions to ecological discourse. Consequently, this study recommends engagement of religious study which successfully incorporates the facts of science and social sciences so as to advance improved ideas for the ecological crisis.



## CONCLUSION

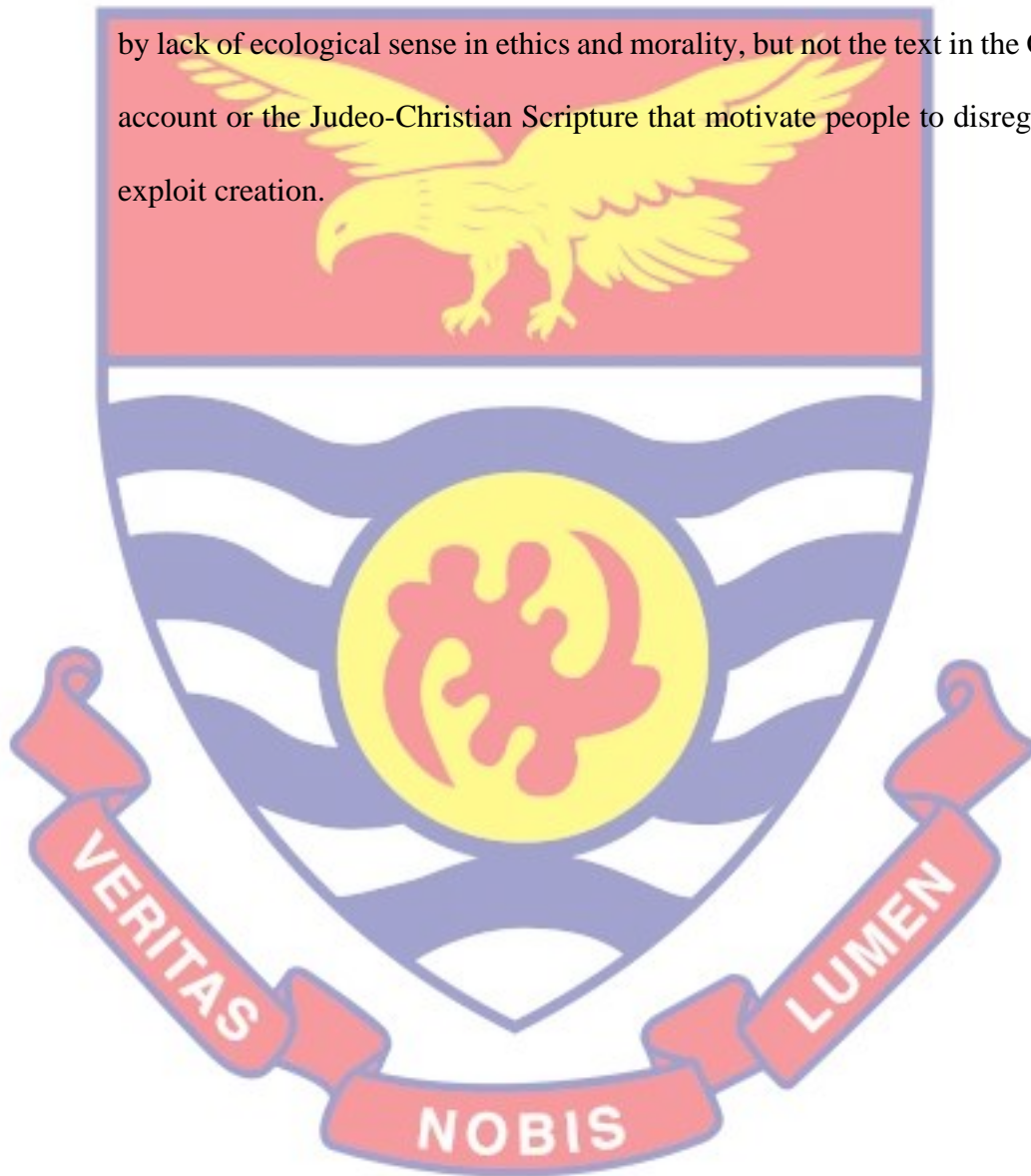
On the whole, this study maintains that if people have exploited the environment which has led to the modern ecological crisis then it is not the Judeo-Christian Scripture that has sanctioned it. The notion that human beings have been created “in the image” and “likeness of Elohim” and so they see themselves as creatures who are over and above nature is unfounded. Humankind have been created “in the image and likeness of God” to *order, rule, and care for* the other creatures as Elohim himself, the Creator, would treat them. So, the view that humankind is created “in the image and likeness of Elohim” and the mandate to “subdue the earth” and have “dominion over” all other creatures is therefore about exploitation is out of place.

From the ensued discussions, we can accept the fact that the cause of the contemporary ecological crisis is not at the instance of the text of the Judeo-Christian Scripture. As suggested by Kavusa (2019), it is inapt to mix in one frame the biblical statements and one’s current realities in the context of textual interpretation. With the historical context in which the book of Genesis was written, there are no traces of evidence that biblical texts were formulated in a world that knew something about modern ecological crisis. The perception that “the root cause of our ecological crisis” has been influenced by ‘the Western Christianity and its anthropocentric tradition’ (White, 1967), has rather been created by the way some scholars have interpreted the Bible. Their argument that “it is God’s will that human beings exploit nature for their own ends” (Kavusa, p. 229) is untenable.

It is logically unsound for Yahweh to create his world (Genesis 1:1-31), puts humankind to take care of it (Genesis 2:15), and then mandates them to destroy it. Since the Bible is upheld by Christians as the sacred and standard document around which their faith and practice or conduct evolve, there is no way the Bible can promote an attitude or behaviour that is inconsistent with its teachings. Tenets of the Bible are required to be upheld by its adherents as a matter of obedience and reverence to Yahweh, though many Christians, admittedly, do not live according to these tenets. However, the argument by critics seems to connote that Christian living differs from biblical teaching. This is a complete illusion since “Christianity is the religion of the ‘Word’ of God” (Catechism of the Catholic Church, No. 108, 2010) and the Christians are mostly known to be “People of the Book” (Jeffrey, 1996, p. 14). In simple terms, the Bible is incapable of encouraging its adherents to practice something contrary to the word of Yahweh.

Although Christianity cannot be faulted on the problems of modern ecological crisis, it cannot be exempted from finding amicable solution to it. Christianity bears a huge responsibility in an attempt of finding this antidote because it is estimated that about 32% of world population are Christians (Robinson, 2011). Since its total population growth exceeds any other religion in the world, it must exhibit greater commitment of teaching and reminding people to act ethically and morally than any religion in remedying the modern global ecological crisis. This does not also suggest exclusion of other religions apart from Christianity in the fight against the current ecological crisis. It is time everyone needs to think, believe and act ecologically. The concept of ethics and morality must not be limited to only human society, but more importantly to be

extended to creation in general. This therefore compliments the profound statement of Mahatma Gandhi on the ecological crisis as quoted in the United States Environmental Protection Agency: “The Earth provides enough to satisfy every man’s needs, but not every man’s greed” (USEPA, 2011). The contemporary global ecological crisis may be attributed to human greed guarded by lack of ecological sense in ethics and morality, but not the text in the Genesis account or the Judeo-Christian Scripture that motivate people to disregard and exploit creation.



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