

**INSTITUTE OF SPIRITUALITY AND RELIGIOUS FORMATION
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MWANSA RODGERS (M.AFR)

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TOPIC:

**ECOLOGICAL INTERGRITY ACCORDING TO LAUDATO SI' AS A WAY
OF ADDRESSING THE ENVIRONMENTAL SITUATION IN MAZABUKA
ZAMBAIA (SOUTHERN-AFRICA)**

SUPERVISOR:

Rev Fr. REMIGIUS IKPE

PROOF READER:

Rev Dr. Petri Assenga

**An Essay Submitted in Partial Fulfillment of the Requirement for a Diploma in
Spirituality**

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DEDICATION

I dedicate this work to my late father Mr. Mike Mweshi Mwansa, who asked me to plant a tree at home the time I joined *The Society of the Missionaries of Africa* in the year 2010. The tree is blossoming and giving fruits.

ACKNOWLEDGEMENT

First and foremost, I give thanks to God the almighty, whose sustenance continues to nourish me with life and deep insights for the well-being of the larger community of life. I owe great thanks to *the Society of the Missionaries of Africa* who made it possible for me to be part of the Tangaza community that is committed to teaching minds and transforming lives. Their great support and prayer cannot be taken for granted.

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Finally, I cannot end my vote of thanks without thanking my family and friends who prayed for me and encouraged me to take courage in times when I felt weary. May God bless them abundantly in all their endeavours and pledge to the well-being of humanity and the totality of reality.

STUDENT'S DECLARATION

I, the undersigned, declare that this long Essay is my original work achieved through my personal reading, experience, scientific research work and critical reflections. It has never been submitted to any other college or university for academic credit. All sources have been cited in full and acknowledged.

Name of Student: Mwansa Rodgers

Signed:.....

Date:.....

This long Essay has been submitted for examination with my approval as the college Supervisor.

Name of Supervisor: Fr. Remigius Ikpe

Signed:.....

Date:.....

ABBREVIATIONS

Cf	Confer
CS	Creation Spirituality
CCC	Catechism of the Catholic Church
DCF	Deleterious Collateral Effects
NSE	Nakambala Sugar Estate
ER	Environmental Renewal/Ecological Renewal
RA	Renewal and Action
SDG	Sustainable Development Goals
UC	Universal Communion

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GENERAL INTRODUCTION

The culture of consumerism and the struggle for economic emancipation today have led to deep ecological consequences. The current epoch in many parts of the world seems to pay little attention to the environmental impacts brought by various models of production and life-styles. Bearing that in mind, this paper explores the implication of ecological integrity according to *Laudato Si'* in combating the environmental crisis in Mazabuka-Zambia.

In this essay, the researcher intends to discuss the teaching of “Laudato Si’” as having fundamental insights to promoting ecological integrity. On one hand, the paper shall present the environmental situation in Mazabuka and, on the other hand, it shall present possible ways of addressing the problem while drawing insights from the teaching of “Laudato Si’”. Before that, the reasons for the choice of the topic, the objectives and the research methods are cautiously demonstrated. In addition to the above, it has to be mentioned that the treatise is based on personal reading, experience and a careful observation of the rampant ecological predicament affecting the larger community of life in Mazabuka.

Laudato Si', as it gives a detailed account on the promotion of ecological integrity, is indeed a call for every person living on Earth to reflect with great conscious, on the way humanity is shaping the future of the planet. In its depth, the document invites the human family to inculcate the spirit of caring for our common home; which is, the totality of the earth. Having reflected deeply on the situation of our mother earth, on 24th May 2015, an Encyclical letter “Laudato Si’ – *On the Care for our Common Home*, was issued by the Holy Father Pope Francis. With regard to its importance and concern for the well-being of humanity, and the rest of reality, the letter therefore, stands significant to addressing the environment situation in Mazabuka-Zambia.

Background of the Study

Zambia is a sovereign state situated in the Southern Region of Africa. The population of the country is approximately 13,092,666 million people.¹ Within Zambia, we find a district called Mazabuka. The name Mazabuka comes from a Tonga word ‘twazabuka’ or ‘kuzabuka’, which implies, to cross over the river. Oral tradition

¹ CENTRAL STATISTICS OFFICE, *Zambia 2010 Census of Population and Housing: Population Summary Report* (Lusaka: Central Statistic Office, 2012), 3.

² Cf. CENTRAL STATISTICS OFFICE, *Zambia 2010 Census of Population and Housing*, 43.

³ FRANCIS, *Encyclical Letter “Laudato Si,” on the Care of our Common Home* (24th May 2015), Nairobi: Paulines Publications, 2015, 10.

⁴ FRANCIS, *Encyclical Letter “Laudato Si,”* 10.

has it that, the name was coined after the Tonga people crossed the Magoye River during their migration. Mazabuka is located in the Southern province of Zambia. It is situated on the south west of Lusaka the capital city of the country. Again, the district is located on the southeast edge of the Kafue River and flats.

Mazabuka district harbours the human population of approximately 35 000.² With the presence of the Zambia Sugar Plantations, abundant fish in the Kafue River, mining, the wetland that is conducive for farming and business opportunities, the district has people from various provinces of Zambia; that is to say, it is becoming more and more, *cosmopolitan*. Nevertheless, the indigenous people are the Tonga. With so much industrial, farming, business and other domestic activities happening in the district, the environment is slowly being affected. Production is going faster at the expense of nature.

Anthropocentric mentality and negligence are dominating the care for the environment around. For example, by-products from industries around, fueled into the Kafue River have led to water pollution and so, aquatic disaster. The emission of gasses and toxic materials has resulted into air and land pollution. Even though humanity in the district seems to be at the center of everything, the race is also experiencing health challenges due to pollutions. The throwing away of materials that are not biodegradable, has brought environmental challenges. Deforestation, mostly for charcoal, is one of the activities putting the present and future climate in Mazabuka at risk.

Due to the above challenges and many others, it is important to note that we cannot just sit and watch our home (Environment) being plundered. We need a response to the above challenges. It is therefore from the above situation that the research at hand finds context.

Purpose and Aim

The aim of the study is to raise awareness on the importance of ecological integrity in Mazabuka. By bringing up the ideas, issues and solution to the environmental problem according to Laudato Si', the study seeks to help in building up harmonious environment between human beings, and the rest of nature in the district.

² Cf. CENTRAL STATISTICS OFFICE, *Zambia 2010 Census of Population and Housing*, 43.

Problem Statement

Mazabuka is one of the Districts in Zambia that has been experiencing environmental dilapidation. The industrial works going on, even though it has brought development in the area, the emission of toxic gasses and waste products have led to water, land and air pollution. The above has brought negative consequences to aquatic and land inhabiting creatures. Many of the diseases being experienced today have got some roots in the pollutions going on. Agricultural expansion is one of the aspects being exploited in the area; which is good in some ways. However, various crops are replacing the natural forests at the expense of natural balance. Deforestation for various reasons has disturbed the rain circle. There are many people still embracing the throwaway culture; that is, the dumping of materials that are not biodegradable without paying attention to their impacts on the environment.

Some people of good will, groups, organizations and the government have rose up to arrest the situation at hand. The above entities are providing possible ways of responding to the situation. For example, the policy of reforestation is being implemented by some groups of people. Because of the above, the teaching of Laudato Si' emerges to be important in supplementing the above efforts with regard to attaining ecological integrity.

Study Objectives

1. To explore the teaching of Laudato Si' on ecology and how it may address the situation in Mazabuka;
2. To find out the challenges of the environmental situation in Mazabuka;
3. To propose ways of addressing the environmental situation in Mazabuka in the light of Laudato Si'.

Justification of the Study

It is evident that the human and the natural communities in Mazabuka Zambia are facing challenges. Ecologically there are threats (for example: Pollution) to the natural balance or rather equal sharing in the eco-system. Threats are mostly as a result of the human activities inspired by modern forms of economic development. Hence, the need to explore the teaching of Laudato Si' in order to supplement the fight against environmental dilapidation, bring about natural balance and in return, promoting the restoration of ecological integrity in Mazabuka.

Scope and Delimitations

The environmental situation in Zambia cuts across the country. However, the research will be limited to Mazabuka, a District situated in the southern part of Zambia. Furthermore, the research shall be limited to the topic on ecology.

Difficulties

In this paper, we explore issues that have more to do with production and business. In some way, it would expose the practices of some industries and critical issues that are leading to ecological crisis. Again, in the midst of other academic work during the program of study, the researcher might be challenged in terms of balancing and allocating enough time for the research.

Remedies

In making this research a reality, the researcher will be dedicated to objectivity when it comes to exposing critical issues regarding the environment. Objectivity would be primarily for the sake of attaining a neutral ground and response for the issues affecting the community of life in Mazabuka. Additionally, the researcher will be devoted to allocating reasonable time for research works.

Possible Research Questions

1. What is the teaching of *Laudato si'* on ecology and to what extent may it address the situation in Mazabuka?
2. What are the challenges of the environmental situation in Mazabuka?
3. What are the possible ways of addressing the environmental situation in Mazabuka in the light of *Laudato Si'*?

Methodology

To substantiate the topic at hand, the research will mainly focus on the Encyclical letter (*Laudato Si'*) of the Holy father Pope Francis. Relevant books related to the topic we shall be conferring will be used to support the ideas. Various documents such as the Earth Chatter and those published by the Ministry of Tourism and Environment in Zambia will be of significant value to this treatise. Furthermore, personal experience on the Environmental situation in Mazabuka and some valuable Internet sources will be referred to.

CHAPTER ONE:

THE TEACHING OF “LAUDATO SI” ON ECOLOGICAL INTEGRITY

Introduction

Drawing from particular insights of the ‘care for our common home’, the discussion in this chapter is aimed at bringing out an essential teaching of “Laudato Si” on Ecology Integrity. In its precedence, the ideas therein flow from the call of Saint Francis of Assisi on the care for all that exists while cogitating on nature as joyous mystery. The Gospel of creation and a consideration of the nature’s universal unity would, to a larger extent, help us understand an integral aspect of ecology. With that in mind, we venture into looking at the call of Saint Francis of Assisi.

1.1 The Call of Saint Francis of Assisi

An emphasis on the call of Saint Francis of Assisi regarding the care of the vulnerable and of an integral ecology, could not escape our scope in bringing out clearly the insights of Laudato Si’. In fact, Saint Francis’ unique attraction to the whole of God’s creation and a deeper exploration of life in its entirety, makes him fit to be “the patron saint for all who study and work in the area of ecology.”³ The call of Saint Francis could be sympathetically perceived as a special quest for a “life of simplicity... harmony with God, with others, with nature and himself.”⁴ By the openness of his heart, self-giving, Love and generosity, his vocation became a reality while outspreading its impact to the ‘to be’ generation.

To a greater extent, an arduous search for an integral ecology calls for “openness to categories which transcend the language of mathematics and biology, and take us to the heart of what it is to be human.”⁵ With a passionate heart, Saint Francis’ relation with all creation transcended arithmetical or numerical appreciations to a deep realization of his union and affection with all that is hence, “felt called to care for all that exists.”⁶ He came to a profound realization that the reality around him, regardless of their natural definitive state and magnitude, determined, in one way or another, the choices and the actions he undertook. As such, it was appropriate for him, to approach nature with an openness of heart and a consideration of its diversity. “He did not view elements or animals as something for which he was responsible but rather as brothers

³ FRANCIS, *Encyclical Letter “Laudato Si,” on the Care of our Common Home* (24th May 2015), Nairobi: Paulines Publications, 2015, 10.

⁴ FRANCIS, *Encyclical Letter “Laudato Si,”* 10.

⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 11.

⁶ FRANCIS, *Encyclical Letter “Laudato Si,”* 11.

and sisters to which he related.”⁷ The above, is a call for a practice of humility, an ethical value of living in solidarity with creation; something we can call wisdom. In the Franciscan Spirituality, this is what is referred to as: “Francis’ Humble Approach.”⁸ Arising from such a unique and well-founded vocation of Saint Francis, *Laudato Si’*, in its depth and teaching, invites us to care for all that exists with an understanding of nature as a joyful mystery.

1.2 Care for all that Exists

Experience has shown that humanity is in a constant search for bringing up difference or rather change in the way of life or approach to the culture of doing things. “Change is something that is desirable, yet it becomes a source of anxiety when it causes harm to the world and the quality of life of much of humanity.”⁹ Certainly, technological advancement, industrial activities and the common human activities have been and will continue to be essential to the world history in as far as improving human life is concerned. However, “the continued acceleration of change affecting humanity and the planet is coupled today with a more intensified pace of life and work which might be called *Rapidification*.”¹⁰ Pollution and climate change are some threats affecting human life. In fact, today, such threats are deeply rooted in the daily-intensified human activities.

Before advancing into a reflection on the care of all that exists, it would be worthwhile to state that, “technology, which, linked to business interests, is presented as the only way of solving these problems, in fact proves incapable of seeing the mysterious network of relation between things and so sometimes solves one problem only to create others.”¹¹ For example, the increase in the production of sugar to meet the economic demands of our time is very important. Nonetheless, in the process of producing sugar, pollutant substances are released into the atmospheric pressure, land and even water bodies. In due course, such substances do not only become health hazards to humanity but they also affect the birds of the air, aquatic creatures and all that exist on and beneath the earth.

⁷ ILIA DELIO, KEITH WARNER and PAMELA WOOD, ed., *Care for Creation: A Franciscan Spirituality of the Earth* (Saint Anthony Messenger Press, 2008), 77

⁸ DELIO, WARNER AND WOOD, ed, *Care for Creation*, 77.

⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 18.

¹⁰ FRANCIS, *Encyclical Letter “Laudato Si,”* 18.

¹¹ FRANCIS, *Encyclical Letter “Laudato Si,”* 20.

Another profound example could be a look at agrochemical substances. The production of sugar involves a cultivation of massive land to grow sugarcanes. To improve the production of sugarcane, chemicals such as fertilizer, hormone, fungicide, insecticide and soil treatments are used. The cultivation does not only bring about deforestation but also, the insertion of agrochemicals causes soil and water acidification, which can be a threat to numerous creatures and the human family.

Today, with the acceleration of development and rapid industrialization, the rising of *thermal* and *radioactive pollution* stands to be a threat to the human and natural environment. Thermal pollution has been understood as: “The warming up of an aquatic system to the point where desirable organisms are adversely affected.”¹² With this understanding, we come to realize that the increase demand for Nuclear Power, Coal-Fired Power, Hydro-Electric Power and Domestic Sewage causes a reduction in the concentration of Oxygen in water, change in water properties, interference with biological activities, increased vulnerability to diseases, destruction of organisms in cold water, effect in marine life and on bacteria.¹³ Certainly, one could not, but adhere to the fact that, due to human activities, life in its various dimensions is under threat hence, calling for a purposeful response.

The testing of nuclear weapons, the preparation of radioactive isotope and to some extent, the medical treatments that use X-rays have given birth to artificial radioactive pollution that becomes detrimental to the biological system.¹⁴ Indeed, the above sounds threatening and could easily lead a reflective mind to worry about the future of humanity and earth at large. Though the above examples may relate more with highly technological advancements, there are still other domestic worries to the environment.

At a very basic level, an increase associated with through-away culture qualms the general public. Accustomed to a way of life today are “tones of wastes generated, much of it non-biodegradable, highly toxic and radioactive, from homes and business, from construction and demolition sites,”¹⁵ to mention but a few. The human family is simply developing a retrogressive attitude of throwing away anything anywhere without considering the resultant impact. “The earth, our home, is beginning to look

¹² KHITOLIYA, *Environmental Pollution: Management and Control for Sustainable Development*. New Delhi: S. Chand and Company Ltd, 2004, 158.

¹³ Cf. KHITOLIYA, *Environmental Pollution*, 158-160.

¹⁴ Cf. KHITOLIYA, *Environmental Pollution*, 166-167.

¹⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 21.

more and more like an immense pile of filth. In many parts of the planet, the elderly lament that once beautiful landscapes are now covered with rubbish.”¹⁶ In fact, mother earth is crying for restoration; a form of ecological renewal that puts into consciousness the well-being of the totality of reality. Yes, it is in the light of the above challenges that the insights of *Laudato si’* becomes relevant by highlighting the following considerations.

1.2.1 Climate as a Common Good

The conception regarding climate as a common good could help us to recognize that the need of every creature in existence depends on the elements of the cosmos. “The climate is a common good, belonging to all and meant for all.”¹⁷ The disturbances made on the natural environment have an impact on the life of another creature. For example: “carbon dioxide pollution increases the acidification of the oceans and compromises the marine food chain.”¹⁸ The above, might lead to a phenomenon that we could term *aquatic disaster*; a situation that could principally result into a rapid loss of aquatic creatures.

Water as an element of the cosmos is of paramount importance for all creatures. As such, the warming up of aquatic systems and the emission of wastes into the oceans, seas, lakes and rivers has a web of detrimental effects, ranging from the deterioration of aquatic life to human life. Therefore, there is a need to develop a comprehensive understanding of climate, as a common good necessary for all that exists. By so doing, the implementation of certain human activities will be based on improving the quality of life in its diversity and generation to come.

As it could be viewed in many philosophical discourses, the universe manifests itself as an orderly reality. It is observable that every natural production of one creature is meant for the good of another. The food web for example suggests a unique relationship in the ecosystem. Let us look at the leaves that fall from the trees. One might think as though they are wasted. In real sense, the leaves are actually consumed by decomposers such as fungi and bacteria. Hence, providing them with nutrients and energy necessary for their growth. From *the food-web-idea*, we come to realize the great relationship that exists between created things thus, expressing the concept of the common good. With that in mind, we come to a belief that: “God looked at everything

¹⁶ FRANCIS, *Encyclical Letter “Laudato Si,”* 21.

¹⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 23.

¹⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 24.

he had made and He found that it was very good.” (Gn 1:31) It is therefore worthwhile to think that all that is, has a unique purpose and so, contributing to the order in the universe.

The concept pertaining to climate as a common good, suggests a considerable usage of resources in the present moment while foreseeing the need for the future generation. Looking at the depletion and scarcity of resources today, we could agree to the fact that, “our world has a grave social debt.”¹⁹ Drinking water that was a common property, today is a commodity on the market; making it difficult for the poor people and other creatures to access it.

We fear the risk that we are creating for the coming generation, in that: “The earth’s resources are also being plundered because of short-sighted approaches to the economy, commerce and production.”²⁰ We are now experiencing the extinction of biodiversity. “It is not enough, however, to think of different species merely as potential “resources” to be exploited, while overlooking the fact that they have value in themselves.”²¹ It is possible therefore today, to think that certain plants, birds and animals would never be known by the generation to come. The common good in this manner consists in “the protection of biodiversity.”²²

With regard to the care for the ecosystem, the principle of the common good demands a serious imploring of modes of development that are far-sighted. Common good, as presented in *Laudato Si’*, is a call for a great concern in the well-being of creation and developing programs and strategies of protection with particular care for safeguarding species and the environment as such.²³ Since a lot of damage has been done to the environment, *Laudato Si’* then, initiates a form of rekindle or rather, renewing our attitudes towards the environment.

1.2.2 A Call for Environmental Renewal

A lot of efforts in different countries and organizations are being implemented in order to bring ecological restoration. We could henceforth say that: “all our limitations, gestures of generosity, solidarity and care cannot but well up within us, since we were made of love.”²⁴ There is a perceived change of attitude towards mother

¹⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 30.

²⁰ FRANCIS, *Encyclical Letter “Laudato Si,”* 32.

²¹ FRANCIS, *Encyclical Letter “Laudato Si,”* 33.

²² FRANCIS, *Encyclical Letter “Laudato Si,”* 37.

²³ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 36-42.

²⁴ FRANCIS, *Encyclical Letter “Laudato Si,”* 58.

earth and that has to be encouraged at all levels. Some Rivers in various parts of the world are being cleaned. We are as well witnessing technological advancements that consider the good of the earth. The building and experimentation of tech-machines that could be used to clean oceans is something to be reinforced in technological investments. Certainly, there is hope. Perhaps, we might head towards the promise of the Israelites:

For the Lord your God is bringing you into a good country, a land with streams of water, with springs, and fountains welling up in the hills and valleys, a land of wheat and barley, of vines and fig trees and pomegranates, of olive trees and honey, a land where you can eat bread without stint and where you will lack nothing, a land whose stones contain iron and in whose hills you can mine copper (Dt 8:7-9).

The responses to restoring the environmental crisis could help to realize the promise of the Israelites. However, the unprecedented threats as experienced today, calls for a global change in climatic attitude. “It will require, every person, every business and every institution to choose an alternative path if disaster upon disaster is to be avoided.”²⁵ We could as well consider *environmental renewal* as an alternative path to soothing the environmental disruption. Additionally, we could learn that “contemplation ignited Francis’s heart, which led to his profound conversion and his commitment to living a penitent life.”²⁶ In a reflective way, Saint Francis looked critically at the core of injustices caused to creation hence, inviting him to a form of environmental transformation.

Environmental renewal (ER) could be an act of taking up the responsibility while accepting that, to some degree, we are to blame for the environmental crisis. “Ultimately, to progress towards a more sustainable world, we will have to embody the values of compassion, wisdom and integrity, both as individuals and as communities.”²⁷ ER then, is an appeal to see the implications of our actions towards creation and how they impact her integrity. Those actions that are “jeopardizing the global ecosystem”²⁸ are to be abandoned and adapt ethical values of dialogue with nature such as compassion, wisdom, love and integrity.

A form of ecological renewal that puts into consideration the articulated ethical values in the previous paragraph, would give us hope. As *Laudato Si*’ would insist:

²⁵ DELIO, WARNER and WOOD, ed, *Care for Creation*, 111

²⁶ DELIO, WARNER and WOOD, *Care for Creation*, 139

²⁷ DELIO, WARNER and WOOD, ed, *Care for Creation*, 157

²⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 60.

“Hope would have us recognize that there is always a way out, that we can always redirect our steps, that we can always do something to solve our problems.”²⁹ With conviction and hope, we can change our life style and become more conscious and avoid certain acts of harm to mother earth. For example, every step towards reducing fossil fuel use and increasing solar energy is a step towards sustainability and a revolution towards the protection of the earth.³⁰

Ecological renewal, in some understandings, requires a conviction in attitude that we belong to the wider creation. There is a tendency to anthropocentrism in some forms of economic developments today; a drift in putting human beings at the center of everything that is. In other words, though fervent it could be, ecological renewal could be thought in terms of acknowledging that we are “citizens of the earth.”³¹ Indeed, “we owe the rivers, fields, forests, and hills of our homeland our deepest love and affection. And our protection.”³² The notions of *citizenship* and *home* are of significant value if we are to have a better realization of how far we have alienated ourselves from creation. In fact, we should be mourning that humanity has resorted into plundering her home. We know that nuclear weapons have a direct environmental impact but we continue making them. We know that directing sewer pipes towards rivers could destroy aquatic creature nonetheless, we continue pumping wastes into rivers.

Developing a mindset that the earth is our home will help us to care for that which we belong to. A family personification of the above call could perhaps assist us bringing out clearly the idea that: “Whoever does not provide for relatives and especially family members has denied the faith and is worse than unbeliever.” (1 Tm 5:8) We would as well deny our faith by failing to care for mother earth. The Bemba people of Northern Zambia have a saying: “*Mwikala patalala mwine apatalalika.*”³³ Implicitly, the restoration of harmony in the universe, to some degree depends on us. We need to synchronize our attitudes towards the ecosystem of which we are a part and uphold the responsibility for ecological restitution.

²⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 61.

³⁰ Cf. DELIO, WARNER and WOOD, ed, *Care for Creation*, 165.

³¹ DAVID TOOLAN, *At Home in the Cosmos* (New York: Orbis Books, 2001), 220.

³² TOOLAN, *At Home in the Cosmos*, 221

³³ The Bemba saying could literally mean that the person who lives on a calm environment makes it calm by him/herself. In relation to our topic at hand, “*Mwikala patalala mwine apatalalika*” could help us to understand and believe that we can be cocreators to providing a calm climate or and reduce some environmental problems of our time, caused to some extent, by human selfishness.

The ancient wisdom suggests that: “The connection to nature is tied up with wonder, as something “older and deeper by far” than our world of artifact, a “world of marvels” that surrounds and sustains our little world.”³⁴ We have indeed a perennial and deep connection with nature. We might seem to ignore that infinite relationship due to economic, political and egoistic arrogances but nature does not forget her duty of sustaining continuously our little world. We are therefore challenged to renew our union with creation affectionately and commit ourselves to restoring the harmony in the universe ‘our home.’ We cannot wait for the coming generation to remind us of the wrong we know. We have to “rethink and refuel our connectedness to nature as a whole.”³⁵ Our responsibility in its entirety is to think of the earth as our common home, the place where we belong and therefore, renew our actions towards her.

Rethinking our relationship with the universe and renewing our attitudes towards the environment, requires an extended understanding that, whether we deny it or not, there is a mystical bond in nature. Hence, environmental renewal is a journey towards the joyful mysteries in creation.

1.2.3. Creation as a Joyful Mystery

The mystery of creation reveals the glory of God. The Judeo-Christian tradition puts across an emphatic description, which calls us to contemplate the meaning of creation by relating it with God’s loving plan in which every creature has its own value and significance.³⁶ Reflecting deeply on creation, we come to realize that creatures do not exist by themselves, they are sustained by the Divine Being (God), determining their time of blossoming in the process of attaining their purported value. Similarly, the psalmist has it that: “by the Lord’s word the heavens were made; by the breath of his mouth all their host. The waters of the sea were gathered as in a bowl; in cellars the deep was confirmed.” (Ps 33:6-7) Simply to understand the psalmist in that way, we assume the belief that creation owes its being to God.

If God continues sustaining creation, it would not be erroneous, perhaps, to suggesting that: “the spirit of the earth is God, the great spirit, and the transcendental yet immanent One.”³⁷ Drawing from the above ascent, with a deeper meaning in creation, *Laudato si’* teaches that: “we can ascend from the created things to the

³⁴ TOOLAN, *At Home in the Cosmos*, 224

³⁵ DELIO, WARNER and WOOD, ed, *Care for Creation*, 176

³⁶ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 76.

³⁷ STEPHAN B. SCHARPER and Hilary CUNNINGHAM, *The Green Bible* (New York: Orbis Books, 1993), 3.

greatness of God and to his loving mercy.”³⁸ Consequently, the psalmists hold that: “The Lord loves righteousness; the earth is full of unfailing love.” (Ps 33:5) This indeed is a mystery that creation in its totality reveals. Creation then, becomes loving and joyous in the sense that: “if you love everything, you will perceive the divine mystery in things.”³⁹ What is happening here now is a call for a contemplative attitude on the divine mystery embedded in things.

With an experience of the ‘dark age,’⁴⁰ of which creation has become the target of unprecedented exploitation, it leaves one with a great concern, whether contemplation on the beauty of the universe would still be enjoyed in the generation to come. As we have mentioned it earlier, contemplating the beauty of creation helps us to discern the glory of God. A form of theological reflection on all that is, to a better extent, makes it possible to understand the mysteries of the universe, which are indubitably essential for a profound union with God and nature. Bearing that in mind, it is therefore important to note that nature possesses an “intrinsic value.”⁴¹ Furthermore, with that inherent value then, all environmental problems are morally significant and urgent at all cost.⁴² By contemplation, nature’s mystical relation with God is revealed. How then is that possible?

Let us believe that all created things reflect the work of God. Scripture puts it rightly that: “ask the beasts to teach you, and the birds of the air to tell you; or the reptiles on earth to instruct you, and the fish of the sea to inform you.” (Jb 12:7-8) In addition to that, as radically put, it is in God’s hand that the soul of every living thing, and the life breath of all humankind find rest. (Cf. Jb 12:10) The knowledge pertaining the mystical and active presence of God to the rest of creation could be impossible if we do not emphasize on dialogue with created things. Entering into dialogue with nature, which we are a part, could trigger in us a realization that, like other creatures we are nothing, but a component of creation that owes subsistence in God.

At the center of development and existence of every creature, lies a mystical reality and uniqueness of being that transcends physical apprehensions. The ecological insight in the teaching of “Laudato Si” affirms that: “Every creature is thus the object

³⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 77.

³⁹ SCHARPER and CUNNINGHAM, *The Green Bible*, 4-5

⁴⁰ *Dark Age*, in this paper, has been used to refer to an era in which mother earth is experiencing a lot of environment challenges such as pollutions, loss of biodiversity, differentiation to mention but a few.

⁴¹ WILLIS JENKINS, *Ecology of Grace: Environmental Ethics and Christian Theology* (New York: Oxford University Press, 2008), 64.

⁴² JENKINS, *Ecology of Grace*, 64.

of the father's tenderness, who gives it its place in the world. Even the fleeting life of the least of beings is the object of his love, and in its few seconds of existence, God unfolds it with affection."⁴³ Indeed, such a mystical element of every creature demands human beings to believe that:

The ultimate purpose of other creatures is not to be found in us. Rather, all creatures are moving forward with us and through us towards a common point of arrival, which is God, in that transcendental fullness where the risen Christ embraces and illumines all things. Human beings, endowed with intelligence and love, and drawn by the fullness of Christ, are called to lead all creatures back to their Creator.⁴⁴

Certainly, it is a joyful mystery of journeying with the rest of creation towards the same point of arrival, which is God. On this journey, transcendently, we are illumined and nurtured. It is therefore, our duty, basing on the fact that we are endowed with reason and love, and understanding that we are called to imitate Christ the Lord, to take care of all creatures regardless of their size and lead them to God. Already, we are entering into a realm of faith and a look at the Gospel of creation would be a better idea to grasping the Christian faith pertaining creation.

1.3 The Gospel of Creation and the Universal Communion

Laudato Si' tries to awaken the Gospel values in Christians and to a better extent, inspire Non-Christians to realize the global responsibility within creation. The teaching of Laudato Si' "would like from the outset to show how faith convictions can offer Christians, and some other believers as well, ample motivation to care for nature and for the most vulnerable of their brothers and sisters."⁴⁵ Indeed, it would be good that the world at large come to a realization of the ecological commitment that stem from our faith convictions, beliefs and values. At this juncture therefore, it would be worthwhile to look at some of the conviction as presented by Laudato Si'.

1.3.1 The Wisdom of the Biblical Accounts

Laudato Si' does not intent to repeat the entire creation theology as articulated in the biblical accounts. The document is widely engaged with a search for what the biblical accounts say about the relationship between human beings and the world. Faith is firmly grounded in three fundamental and closely intertwined relationships: "with God, with our neighbours and with the earth itself."⁴⁶ Implied in the above relationship

⁴³ FRANCIS, *Encyclical Letter "Laudato Si,"* 77.

⁴⁴ FRANCIS, *Encyclical Letter "Laudato Si,"* 83.

⁴⁵ FRANCIS, *Encyclical Letter "Laudato Si,"* 64.

⁴⁶ FRANCIS, *Encyclical Letter "Laudato Si,"* 66.

is a call to maintain and nurture the bond between God, human beings and the rest of reality.

The biblical texts indicate that the relationships as mentioned above have been broken. Adam and Eve broke the relationship with God by failing to keep the promise with God and ate the forbidden fruit. (Cf. Gn 3ff) The wisdom of the bible denotes that the breaking of the vital relationships in reality is in fact sin.⁴⁷ The idea to “have dominion” over the earth (Cf. Gn 1:28), to “till it and keep it” (Gn 2:15) is an inevitable invitation to maintain the harmonious relationship between human beings and nature. It is significant to remember that having dominion over nature does not mean or even “encourage the unbridled exploitation of nature.”⁴⁸ It would be erroneous and consequently insignificant to interpret the scriptural concept of *dominion* as an absolute justification of domineering and being destructive to creatures.

Things have to be put into context. The wisdom of the bible teaches that: “The world was here before us and it has been given to us.”⁴⁹ Hence, God has placed a great responsibility over us. “Till it” (Cf. Gn 1:28) in the light of *Laudato Si*’, implies cultivating, ploughing, working and “keep it” entails caring, protecting, overseeing and preserving.⁵⁰ In this way, every claim suggesting absolute ownership of the earth is indeed, failure to interpreting scripture. Consider this: “The land shall not be sold in perpetuity, for the land is mine; for you are strangers and sojourners with me.” (Lv 25:23). Likewise, “inherent in wisdom is the idea of right living and right relationship with God and others, including those other-than-human.”⁵¹ Wisdom goes further, adding that “the righteous know the needs of their animals, but the mercy of the wicked is cruel.” (Prv 12:10) Undeniably, more importantly as we could put it, embedded in wisdom traditions regarding our relationship with the earth, is the idea of *Ecojustice*⁵² and care for all that is.

⁴⁷ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 66.

⁴⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 67.

⁴⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 67.

⁵⁰ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 67.

⁵¹ NORMAN C. HABEL and SHIRLEY WURST, ed, *The Earth Story in Wisdom Tradition* (Cleveland: Sheffield Press, 2001), 43.

⁵² Ecojustice implies giving the Earth what is due. It is a practice that grounds Christian concern for environmental issues in creation’s theological statuses’ (see W JENKINS, *Ecology of Grace* 64). In the context of this paper, the idea regarding the practice of ecojustice extends to mean an act of caring for all creation and avoiding the misconceptions attached to the biblical concept of *dominion*. It is in fact, a demand to living a righteous life by considering the vital relationship that is ontologically intertwined with the rest of creation and above all, God. In the final analysis, ecojustice is an invitation to care and live in harmony with God, people and nature of which we a part.

1.3.2 The Message of Each Creature in Harmony with Creation

While considering the mystical nature of the universe and the message of each creature in the entire creation, it would be useful that we consider the meaning embedded in the following insight:

Our insistence that each human being made in an image of God should not make us overlook the fact that each creature has its own purpose. None is superfluous. The entire material universe speaks of God's love, his boundless affection for us. Soil, water, and mountains: everything is, as it were, a caress of God.⁵³

In his infinite love, God created every creature with a purpose. It is a fact that we are made in the image of God and we manifest God's presence. On one hand, contemplating on the insistence that we are part of the vast universe, created in God divine love, ought to remind us of God's presence in the vast universe that He created. On the other hand, bearing in mind that creation is the work of God's hand with a purpose, "the universe as a whole, in all its manifold relationships, shows forth the inexhaustible riches of God."⁵⁴ Hence, variety in the universe must remind us of God's intention that represents His divine goodness.

Putting into consideration God's goodness in every creature, we must therefore understand the message of meaning and importance in every creature. The Church, with greater emphasis on the meaning of every creature, teaches that: "Creatures exist only in dependence on each other, to complete each other, in the service of each other." (CCC 340) With that in mind, we cannot henceforth, take for granted that God intentionally willed harmony in creation. Our call therefore, is to participate in restoring and maintaining the harmony that exist among creatures.

1.3.3 A Universal Communion (UC)

Our faith communicates that: "as part of the universe, called into being by one father, all of us are linked by unseen bonds and together form a kind of universal family, a sublime communion which fills us with a sacred, affectionate and humble respect."⁵⁵ Indeed, we are united in a profound, if not precious bond that finds its origin in God. The unseen bond therefore does not imply that all creatures live on the same level. As human beings, we have our unique essence and valuable responsibility; that of working and caring for mother earth (Cf. Gn 1:28, 2:15).

⁵³ FRANCIS, *Encyclical Letter "Laudato Si,"* 84.

⁵⁴ FRANCIS, *Encyclical Letter "Laudato Si,"* 86.

⁵⁵ FRANCIS, *Encyclical Letter "Laudato Si,"* 89.

A universal communion is a teaching that could help us to realize our deep relationship with nature. It would be a void pronouncement to claim that we are in communion with the rest of nature and yet our “hearts lack tenderness, compassion and concern”⁵⁶ for the well-being of the earth. Accordingly, “we can hardly consider ourselves fully loving if we disregard any aspect of reality.”⁵⁷ The sincerity of heart and truth would be manifested if and only if; we come to terms with nature and ourselves affectionately. As followers of Jesus, we can learn more from his affectionate union with the rest of reality hence, a look at Him.

1.3.4 The Gaze of Jesus

The Gospel of creation finds climax in the person of Jesus whose life and teaching had to do, in many aspects, with creation. We heard him saying: “Are not five sparrows sold for two pennies? And not one of them is forgotten before God” (Lk 12:6). This was a fundamental invitation of Jesus for his disciple to realize and remember that God is the father of all created things and has a great concern for their existence. In a definitive explanation, *Laudato Si’* teaches that: “The Lord was able to invite others to be attentive to the beauty that there is in the world because he himself was in constant touch with nature, lending it an attention full of fondness and wonder.”⁵⁸ Jesus continuously contemplated on the divine beauty that his father brought into being. Wherever he went, his teaching and reflections were constantly related with the beauty in creation: “Look up and see the fields ripe for the harvest.” (Jn 4: 35) “The Kingdom of God is like a mastered seed that a person took and sowed in a field. It is the smallest of all seeds, yet when full-grown it is the largest of the plants.” (Mt 13:31-32) Jesus gazed the message in created things and used it to communicate something significant to his followers.

It is undeniable that Jesus lived in harmony with creation. People were certainly amazed at his actions: “what sort of man is this, whom even the sea and the wind obey.” (Mt 8:28) St Paul tells us that, “all things were created for him and through him.” (Col 1:16) Henceforth, Jesus is prominent in all creation and has an upper hand in its meaning.

The prologue in the Gospel of John gives us a testimony of the preexistence of Jesus and to some degree, his involvement in the work of creation as the divine word

⁵⁶ FRANCIS, *Encyclical Letter “Laudato Si,”* 91.

⁵⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 92.

⁵⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 97.

(Cf. Jn 1:1-18). With the above testimony, we could not be wrong perhaps, to think of some sort of *Creation Spirituality* (CS) that sees its devoutness in Christ's preexistence and his creative work as a divine word. Again, learning from his earthly life of living in harmony with nature and taping knowledge from things, we could be encouraged to live in a loving relationship with a complex network of the community of life as we consider various modes of social-economic developments today. Thus, we are invited to have a better understanding of an integral ecology; one that recognizes the relationships between living organisms, environment, models of development, production and consumption. With that, let's consider elaborating an aspect of integral ecology.

1.4 An Integral Ecology

Tackling most environmental challenges that we are experiencing today calls for a deeper understanding of the relationship between living organisms, environment, economy and the social systems. *Laudato Si'* informs us that: "we are faced not with two separate crises, one environment and the other social, but rather with one complex crisis which is both social and environmental."⁵⁹ Hence, integral ecology, while considering the complexity of the environmental crisis, is a demand for "an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature."⁶⁰ Surely, it is an approach that has regard for the reality of interdependence in existing things.

We understand that human existence depends very much on the harmonious systems in nature. Let us consider the indispensable interaction in the *ecosystems*⁶¹ in "dispersing carbon dioxide, purifying water, controlling illness and epidemics, forming soil, breaking down waste and many other ways which we overlook or simply do not know about."⁶² A realization of the interconnectedness in reality ought to help us acknowledge that certain actions that are beyond our abilities, and in some cases preceding our existence, contribute to our daily life. It is therefore from the above fact that in our insistence, "we speak of sustainable use."⁶³ Implying a consideration that

⁵⁹ FRANCIS, *Encyclical Letter "Laudato Si,"* 139.

⁶⁰ FRANCIS, *Encyclical Letter "Laudato Si,"* 139.

⁶¹ In this inscription, 'ecosystems' refers to a vital relation of creatures to one another in making up a larger biological community of interacting organisms.

⁶² FRANCIS, *Encyclical Letter "Laudato Si,"* 140.

⁶³ FRANCIS, *Encyclical Letter "Laudato Si,"* 140.

must always be given to each bionetwork's renewing aptitude in its difference and facet.

Looking at the vital bionetwork and how it stands fundamental to human existence, *Laudato Si'* suggests what could be termed as “economic ecology capable of appealing to a broader vision of reality.”⁶⁴ We share a “symbiotic relation with non human world”⁶⁵ and the consequence is that, whatever we do, in one way or another, have an impact on the environment that could lead to ecological crisis. Due to that fact, with a direct comprehension that we are part of the vast universe, we need to believe that “the whole is greater than the part.”⁶⁶ Thus, our economic and social activities ought to demonstrate a great concern for the goodness of the global reality. That is what is meant by economic ecology.

In the work of economic growth, there is need to moderate some intensive forms of environmental exploitation and degradation. The challenge is that today, we are faced with “a consumerist vision of human beings, encouraged by the mechanism of today’s globalized economy”⁶⁷ hence, putting the natural resources at the glimpse of dilapidation and extinction. The above is a *wake-up-call* for the protection of the environment in the way of using resources, building cities, prohibition of mass destructive weapons, industrial activities and even the large scale farming that might impose climate change.

Integral ecology emphasizes the need to develop an attitude of humility and calm down our anthropocentric tendencies in the face of the global economy. “Humility before the natural elements and towards one another are intimately connected: respect for nonhuman life and a refusal to over-exploit other species or one another are therefore integral and produces simplicity of life style.”⁶⁸ On one hand, we could agree to the fact that agricultural industriousness and other technological advancements improve the ability to produce wealth thus an inevitable brief spell of relief and joy.⁶⁹ On the other hand, the human industriousness could lead to over-exploit and deterioration of the environment at the expense of the future generation.

⁶⁴ FRANCIS, *Encyclical Letter “Laudato Si,”* 141.

⁶⁵ MICHAEL S. NORTHCOTT, *A Moral Climate: The Ethics of Global Warming* (New York: Orbis Books, 2007), 124.

⁶⁶ FRANCIS, *Apostolic Exhortation “Evangelii Gaudium,”* (24th November 2013). Nairobi: Paulines Publications, 2013, 237.

⁶⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 144.

⁶⁸ NORTHCOTT, *A Moral Climate*, 125.

⁶⁹ Cf. NORTHCOTT, *A Moral Climate*, 128-129.

That could be indeed a failure to understand the vital link in reality and could be visibly detrimental to the natural harmony.

Integral ecology in that line is an invitation to think widely as we respond to the challenges that affect us in all aspects of life including the environmental crisis. “Our inability to think seriously about future generation is linked to our inability to broaden the scope of our present and to give consideration to those who remain excluded from development.”⁷⁰ We cannot claim to be well off, at the level of economics, social, politics, culture and faith, when the most excluded, the poor and mother earth are suffering. The response to our general problem should enhance and embrace integrally all aspects of life.

Conclusion

We have seen that our chapter was greatly concerned with the teaching of *Laudato Si'* while drawing insights from Saint Francis of Assisi. Indeed in a life of simplicity and humility, Saint Francis realized his relationship with the whole of creation and took up the challenge to live in communion with nature as brother and sister. The call of Saint Francis is an invitation to care for all that exists while bearing in mind that climate is a common good; it belongs to all and meant for all.

In its depth, Pope Francis brings to light in *Laudato Si'* a need for environmental renewal. We are aware of the environmental crisis and of course our contribution to the challenges today. If we continue dealing with the environment as though it were our personal property, we are likely, and as it is happening now, to fall into a pit of committing what could be named ‘eco-injustices’; a phenomenon that disregard the goodness of all that is and failing to give back what belongs to the earth. *Laudato Si'* is a calling for a change in mindset and attitude towards the environment. Certainly, by cultivating the ethical values of compassionate, love and dignity towards the earth we could go through a gradual renewed system.

Basing on the scripture and reflections pertaining to nature, Pope Francis indicates in *Laudato Si'* that creation is a joyful mystery with an ability to echo meaning and purpose. The purpose in nature is not exclusive but rather, a universal communion that exhibits a universal dependence. A deeper understanding of Jesus in the work of creation as a divine word invites us to be co-creators. Furthermore, his earthly life was a continuous contemplation on nature. He drew insights from the

⁷⁰ FRANCIS, *Encyclical Letter “Laudato Si,”* 162.

beauty of creation and used it to deliver his message. Yes, Jesus invites us to develop a form of *creation spirituality* that will help to respond to the complex environmental crisis by a contemplation and implementation of solutions based on integral ecology.

With the above teaching in mind, our next chapter therefore, ventures into an exploration of the environmental challenges as experienced in Mazabuka-Zambia. The aim, is to help us realize the relevance of the insights given by Pope Francis in *Laudato Si'* in that context and inspire action.

CHAPTER TWO:

THE CHALLENGES OF ENVIRONMENTAL SITUATION IN MAZABUKA

Introduction

Having been introduced to the *teaching of Laudato si'* in the first chapter, the second chapter investigates some of the challenges of the environmental situation in Mazabuka, Zambia (Southern Africa). The chapter will approach the investigation by discerning the reality of “Rapidification” of life and human activities in the District while exploring its consequences on the human and natural environment. Without pre-empting our discussion, let us enter into a presentation on the reality of life and activity.

2.1 “Rapidification” of Life and Human Activity

We could begin by stating that today, we are experiencing rapid forms of life. *Rapidification* as a concept is rooted in the very fact of “intensified pace of life and work.”⁷¹ *Rapidification* could further be illustrated with an impression that, “change is part of the working of complex systems, the speed with which human activity has developed.”⁷² With that in mind, it is observable that many sectors of human societies are living with intensified systems of development and Mazabuka district could not be exclusive of that phenomenon. A good number of developments ranging from technological, industrial and agricultural endeavours are part of the daily life in Mazabuka in intensifying forms.

The industrial and other human activities, which are promoting labour and economy in Mazabuka, are attracting many people from various parts of Zambia and beyond. Just to bring a point across, it is widely understood that, “economic activities within a particular locality will attract more labour, therefore the more economic activities an urban centre offers, the greater its ability to attract migrants.”⁷³ Along with migration, labour and economy is a genuine concern for the environment. As people continue flocking into the town for labour, so is the need for extensive forms of technological, industrial and agricultural production. As critical as it could be, the above scenario could be both genuine and distressing on nature’s wellbeing.⁷⁴ Hence, a

⁷¹ FRANCIS, *Encyclical Letter “Laudato Si”* 18.

⁷² FRANCIS, *Encyclical Letter “Laudato Si,”* 18.

⁷³ WILMA S. NCHITO, “Migration in Small Towns: The Cases of Mazabuka and Kalomo in Zambia,” *Environment and Urbanization*, no. 22 (April 2010): 98, Accessed on August 26, 2018, www.sagepublication.com.

⁷⁴ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 19.

look at some human activities, such as technology, industry and extensive farming; coupled with attitudes of anthropocentrism and negligence, perhaps would help us discover possible concerns on the human and natural environment.

2.1.1 Technology and Industrial Investments

Technological and Industrial Investments are indeed great achievements that human history would live to cherish. Focusing on the dominance of technology today, certainly, we could agree with a statement that, “science and technology are wonderful products of God-given human creativity.”⁷⁵ Yes! Science and technology are some unprecedented advancements and opportunities to explore nature and the world with which God has graced the human family. The level of technological inventions, could lead us to reflect more deeply on the following:

The machine is the great witness to man’s power. The land was there at creation. But every machine is the work of man. The power of the machine is man’s power to remake his world, to master it to his own end. This must be a source of pride to humankind. And it may also be a source of sin of “pride” in the special puritan sense. It may tempt us to overlook our limitation and put ourselves in the place of God.⁷⁶

We therefore come to realize that the speed of production today, depends very much on the power of the machines used. Even though technological invention could lead to the sin of pride, it is as well a fact that machinery inventions have made the tilling of the land much easier and faster in terms of production. Corresponding to the above attestation is an idea that, “the power to make machines is a power to accomplish more than we can imagine, in ways we cannot predict.”⁷⁷ By the use of powerful machines, humankind tends to master nature in view of attaining certain ends, oriented towards massive production to meet the daily demands.

While cherishing the creative nature of humanity, we come to realize that having a nature that strives to master the universe through technology and industry, “land is the proverbial source of strength.”⁷⁸ The products of the land are certainly great sources of economic strength, stability and sustainability. Hence, land becomes a necessary resource for nourishing technological and industrial investments.

It is agreeable that the economic architecture of the world today depends on land’s natural resources and technology. We could even more, put it broadly that, “We

⁷⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 102.

⁷⁶ DANIEL S. BOORSTIN, *The Republic of Technology: Reflecting on Our Future Community* (New York: Harper, Row, 1978), 90-91.

⁷⁷ BOORSTIN, *The Republic of Technology*, 93.

⁷⁸ BOORSTIN, *The Republic of Technology*, 89.

cannot exist without modifying and borrowing from the ecosystem around us – for food, clothing, shelter, energy, and other material goods.”⁷⁹ Our technological and industrial activities therefore are in an inevitable and permanent relationship oriented towards a “sustainable society.”⁸⁰ Technology for that matter is profoundly dependent on the natural environment for its continuity and contribution to the economic muscle of human society.

Mazabuka is one of such places in the world whose economic strength depends on natural and industrial advancements. Huge machines mainly do the large-scale cultivation of land in Mazabuka. The loading and transportation of sugarcane for example, involves the use of tracks that use a great amount of energy. The processing of sugar at Nakambala Sugar Factory, in the recent years has expanded due to its demand. A lot of industrial investment and the introduction of highly advanced machines in the area does not only increase the rate of production but also leads to the creation of employment while contributing to the global economic status of the country. Industrial advancement is indeed a positive aspect that technology and industrial investment have brought to the people of Mazabuka and beyond.

While talking about industrial and technological investment in Mazabuka, it could be worthwhile to give strong emphasis on the agricultural aspect that seems to principally benefit from technology while shaping the economy. As such, a look at the agricultural activities in Mazabuka would be significant to ground our understanding on the reality of Rapidification of life and human activities.

2.1.2 Extensive Agriculture

Agricultural schemes in Zambia are seen as ways of revamping the economy of the country. Prompted by the uncertainties of copper⁸¹ prices on the global market, Zambia is slowly turning attention to invest more in agriculture. Many people in Zambia today, both in rural and urban areas are passionately engaging in agribusiness and commercial farming as they are seen as alternative to improving their living standards. The above scenario has also attracted some investors from other countries with the desire to exploit the land and water bodies in agribusiness.

⁷⁹ DAVID TOOLAN, *At Home in the Cosmos* (New York: Orbis Books, 2001), 104.

⁸⁰ TOOLAN, *At Home in the Cosmos*, 104

⁸¹ Approximately, copper largely sustains Zambia’s economy by 70%. The country is blessed with that natural resource. For some years, the copper prices maintained some stability. However, in the recent years, the copper prices on the global market have not been stable. The above situation has led to uncertainties of the Zambian economy that depends very much on copper. Hence, raising the need to venture more into agriculture so as to sustain the economy of the nation.

Turning attention towards agricultural activities is indeed a substantial shift for the country. For example, Zambia's development objectives have prioritized the commercialization of the smallholder sectors through outgrower schemes as a way to integrate farmers in rural areas into national economy.⁸² The strategy is indeed an overwhelming realization of the role of agriculture in the economic development of the country.

Zambia is indeed blessed with a massive and fertile land. Not forgetting the water bodies and a reasonable climate proper for agricultural activities. Mazabuka for example, possesses a favourable climate necessary for agriculture. With that in mind, in Mazabuka District, there is an inflow of agricultural investors with particular interests in sugar production. It has to be mentioned that Mazabuka district is known for its sugar production necessary for economic influence. Yes, "key to drives of the growth in the Zambian sugar sector are its contribution to the economy through increased foreign exchange earnings, growth of the Gross Domestic Product (GDP), economic diversification from copper mining, wage-employment and rural development."⁸³ The case of Mazabuka district in reference to the key drives mentioned above shows a rapid growth in large-scale farming, in particular, sugarcane.

Extensive agricultural endeavours in Mazabuka have seen a lot of development by the introduction of extensive farming technologies in irrigation, agrochemicals, transportation of material and of course, in the processing industry. With a suitable geographical location, the Nakambala Sugar Estate and other smallholder farming blocks' irrigation systems depends largely on the Kafue River. Given this context, the cultivation of sugarcane in Mazabuka has taken massive lands that could easily be irrigated by the waters from the Kafue River. The sugar plantations have largely replaced the natural forests that existed before. In as much as there are economic benefits from large-scale farming, there are also some observable negative impacts on both the natural and the human environment, as we shall see later.

In *chapter one* we discussed the role of agrochemical substances in crop production. The extensive agriculture in Mazabuka uses a lot of chemicals such as fertilizers, hormones, fungicides, insecticides and soil treatment substances to improve

⁸² World Bank, *Zambia Smallholder Commercialization Strategy* No. 36573-ZM (Washington DC: World Bank, 2017), 1.

⁸³ CHRISPIN R. MATENGA, "Outgrowers and Livelihoods: The Case of Magobo Smallholders Block Farming in Mazabuka Zambia," in *Journal of Southern Africa Studies*, ed. Alex Dubb, Ian Scooner and Philip Woodhouse (London: Taylor and Francis Group, 2017), 553.

the quantity, quality and indeed the efficiency of crop production. While the agricultural production has increased due to the introduction of agrochemicals, questions are being raised regarding the impact of such chemicals on the ecosystem.

Such an observation extends to the impacts of huge machines used in the Nakambala sugar processing industry and the surrounding environment. Certainly, huge machines accelerate the production of sugar. However, huge machines require the use of substantial amount of energy that in turn produces radioactive pollutants and other substances that could be toxic to bionetwork.

As we emphasize the economic contribution of the human creative power in the area of farming technologies, it is important as well to see that slowly, there is a perceptible degree of human centeredness and negligence at the expense of the larger community of life in Mazabuka. As such, it would be an incomplete comprehension of the *Rapidification of life and human activities* in the District without addressing the reality of *anthropocentric attitude* and *human negligence*. Hence, a need for the above anticipated endeavour.

2.1.3 Anthropocentrism and Negligence

In the previous topic, we have been discussing the various human activities contributing to the economic muscle of Zambia and in particular, a focus was placed on Mazabuka district. Technology, industry and extensive agricultural activities showed that they are indeed inevitable tools overseeing economic development today. With the pace at which the above activities are being done, we come to realize a certain attitude that seem to place human beings at the centre of everything; a tendency referred to as, *Anthropocentrism*.

Derived from the Greek *anthropos* (“human being”) and *Kentron* (“Centre”), the term anthropology suggests a view that a human being is, or must look upon himself/herself as the centre of reality.⁸⁴ Indeed, if we look critically at the *Rapidification of life* in Mazabuka, it is undeniable that all the industrial, technological and agricultural activities seem to be centred at the development of human beings. Which is a good motive in itself. Nonetheless, there is a concern that there is little attention oriented and purposed for the well-being of the totality of reality. It is noticeable for example that, while the production of sugar remains with an economic significance at Nakambala Sugar Factory, the emission of certain toxic substances have

⁸⁴ Cf. WILLIAM L. REESE, *Dictionary of Philosophy and Religion: Eastern and Western Thought* (New York: Humanities Press, 1980), 17.

caused land, water and air pollution. The tilling of massive land, leading to deforestation, has disturbed the natural balance. While reflecting on the above examples, perhaps we could agree with a reflection that holds that:

When human beings place themselves at the centre, they give absolute priority to immediate convenience and all else becomes relative. Hence, we should not be surprised to find, in conjunction with the omnipresent technocratic paradigm and the cult of unlimited human power, the rise of a relativism, which sees everything as irrelevant unless it serves one's own immediate interests. There is a logic in all this whereby different attitudes can feed on another, leading to environmental degradation and social decay.⁸⁵

The environmental crisis being experienced in Mazabuka today has some roots in the attitude of human centeredness. The economic materialism among the technocrats and a belief that *everything is irrelevant unless it serves one's own immediate interest* is not only relative but also, presupposes a form of *human negligence*. The above induces an assumption that “nature will not run out of supplies and that growth will be endless.”⁸⁶ Expressions such as *depletion of natural resources* and *environmental pollution* are not considered when it comes to pursuing immediate interests. Hence, suggesting a profound failure to take proper care of the environment or failure to attach precautions to human activities that might lead to ecological crisis.

Anthropocentrism and negligence regarding ecology are as well reflected in the daily life of the people of Mazabuka. Yes! “We make efforts to adapt to our environment, but when it is disorderly, chaotic or saturated with noise and ugliness, such as overstimulation makes it difficult to find ourselves integrated and happy.”⁸⁷ Negligence therefore comes in when we fail to take care of our homes, workplaces, neighbourhood and the environment when we know very well that we can do it. Our decision to be orderly and care for our environment could be a prerequisite of a possible integration and happiness.

The level of pollution caused by cars and dumping of unused materials is challenging the quality of life in Mazabuka. At times, due to poverty lines in the district, charcoal burning is seen as a means for economic survival at the expense natural forests. Unnecessary burning of forests in rural areas, in preparation of fields for small scale farming, does not only cause air pollution but also the killing of some

⁸⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 122.

⁸⁶ TOOLAN, *At Home in the Cosmos*, 55.

⁸⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 147.

organisms such as insects. Consciously or unconsciously, such activities are more anthropocentric and to some degree, the carelessness of human beings.

Having dealt with *Rapidification of life and human activities*, we have come to realize the benefits of technological, industrial and extensive agricultural endeavours. We have also seen that the attitude of anthropocentrism and negligence in the process of searching for economic freedom are emerging in the district hence, becoming a threat to the community of life. As such, at this juncture, it would be worthwhile to look at the consequences of human activities on the human and natural environment.

2.2 Consequences on the Human and the Natural Environment

While dealing with a topic on *Rapidification of life and human activities*, we saw the great economic contribution of various human undertakings, particularly in Mazabuka district. However, though economically meaningful, such activities have also led to different consequences such as, pollution and phenomena disparities resulting into the vulnerability of the bionetwork. In line with the above, it would be valuable to look at pollution and phenomena disparities.

2.2.1 Pollution

Pollution is an environmental problem that cannot be ignored in Mazabuka. Stemming from “human social and economic activity,”⁸⁸ pollution in Mazabuka, to some degree is “produced by auto and industrial emissions.”⁸⁹ Perhaps we are going far venturing into a topic on pollution without defining terms. What then is Pollution? And to what extent is it problematic in Mazabuka?

In its simplistic and scientific notion, ‘pollution’ could be understood “as the unfavourable modification of the environment as a result of human activity.”⁹⁰ In this definition, we come to realize the role of human beings in the process of environmental modification. The development of civilization shows that humans have always modified their environment by setting up fire, utilization of fossils into energy subsidies, production of chemicals in industries from natural resources and so forth.⁹¹ In as much as environmental modification has led to a number of positive elements, some of which related to economic development and quality of human life, human activities have as well resulted into unfavourable and detrimental environmental

⁸⁸ TOOLAN, *At Home in the Cosmos*, 97.

⁸⁹ TOOLAN, *At Home in the Cosmos*, 97.

⁹⁰ RICHARD BREWER, *The Science of Ecology*, 2nd ed (Canada: Brooks/Cole, 1994), 647.

⁹¹ Cf. BREWER, *The Science of Ecology*, 647.

condition referred to as, *pollution*. As we explore the meaning and extent of pollution, let us consider the following elucidation:

Broadly speaking, there are three types of pollution: (1) industrial or chemical pollution, involving discharge into streams of toxic substances or of organic industrial by-products which reduce oxygen supply; (2) domestic pollution, involving sewage and other organic materials which reduce oxygen and create septic conditions; and (3) Soil pollution resulting from excessive erosion of watershed.⁹²

It must be recognized that human activities that include industry, involves a discharge of certain *toxic substances* or *organic industrial by-products* that could be pollutant and so, dangerous to the quality of life in the community of living organisms. It is true that “our action return to haunt us.”⁹³ Another shared law advocates that: “there is no free lunch.”⁹⁴ Simple examples perhaps could be that: if we get used to dumping wastes in the backyard, we shall definitely pay the cost of their impacts on human life. Similarly, the discharge of toxic gases into the atmospheric pressure could lead to health hazards, or even, acid rain whose effects would need a particular cost to reduce. Indeed, our invariably action on the ecosystem would return to haunt us.

To understand better the phenomenon of pollution in Mazabuka district, it would be important to discuss some challenges in their particularity even if they exhibit a great degree of interconnectedness. As such, a look at Water, Land and air pollution in the district, holds a special place in this discussion.

2.2.1.1 Water Pollution

Mazabuka district is blessed by its geographical location on the southern banks of the Kafue River. The waters from the River, largely supply to the water systems in the district, usually necessary for domestic use, health care, agricultural and industrial activities. Let move further by acknowledging that: “Fresh drinking water is an issue of primary importance, since it is indispensable for human life and for supporting terrestrial and aquatic ecosystem.”⁹⁵ Certainly. Water is a necessity in all spheres of human life, activity and the entire ecosystem.

The irrigation systems that run through the sugar plantations benefit a lot from the Kafue River. The industrial processes such as sugar production at Nakambala Sugar Factory uses a considerable amount of water all pumped from the Kafue River.

⁹² EUGENE P. ODUM, *Fundamentals of Ecology*, 2nd ed (USA: W. B. Saunders Company, 1959), 438.

⁹³ SEAN MCDONAGH, *To Care for the Earth: A Call to a New Theology* (London: Geoffrey Chapman Book Publishers, 1986), 23.

⁹⁴ MCDONAGH, *To Care for the Earth*, 22.

⁹⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 28.

We could as well mention that various stakeholders, in their pursuit to improve the quality of life and economic production, have done a lot to circulate the water systems from the main River into residential areas.

Not only is water pumped from the Kafue River but also, it is observable that the sewer systems in residential areas and also the by-product from the industry, are discharged into the same River. Bearing that in mind, one raises the question regarding the quality of water people drink and the impact of sewer systems on the aquatic creatures.

Health wise, drinking contaminated water can lead to waterborne diseases. Certainly, “organism such as coliform bacteria, which are present in the sewage,”⁹⁶ can cause health problems to the people. In Mazabuka for example, Diarrhoea, Cholera, Guinea Worm Disease, Typhoid and Dysentery are some waterborne diseases that confront the residents annually. Although there are some precautions being taken by people of good will and organization to ensure safe drinking water, there is a lot to be done if the situation could be normalized.⁹⁷

The discharge of toxic substances and by-products from the sugar factory and sewer systems into the Kafue River has always been a problem. Yes! In Mazabuka, there is a perceived “out of sight, out of mind attitude.”⁹⁸ This is a tendency among the people to forget about the harmful substances being discharged into the water systems. McDonagh calls it “flush it down the toilet.”⁹⁹ In that sense, we are only concerned with the immediate; that the wastes have been flushed down but we do not ask about where they go and what impacts they course.

Thousands of fish die every year in the Kafue River because of the toxic substances that are discharged into its aquatic systems. It has to be emphasized that, “Habitat loss and degradation create the biggest single source of pressure on biodiversity worldwide today.”¹⁰⁰ The fish and other aquatic creatures were created in such a way that they enjoy the aquatic environment while participating greatly in the

⁹⁶ ODUM, *Fundamentals of Ecology*, 440.

⁹⁷ As we shall see when we begin highlighting possible solutions to ecological integrity in the third chapter, to ensure safe drinking water, especially that which is pumped from the national water bodies such as the Kafue River, the intervention of government in policy making and the implementation of Eco-priority structures, would be of significant value to consider.

⁹⁸ MCDONAGH, *To Care for the Earth*, 22.

⁹⁹ MCDONAGH, *To Care for the Earth*, 22.

¹⁰⁰ JOSHOM I. KUREETHADAM, *Creation in Crisis: Science, Ethics and Theology* (New York: Orbis Books, 2014), 169.

well-being of the web of life. Hence, polluting the aquatic environment will lead to habitat loss and so, putting pressure on biodiversity.

The intensive agriculture in Mazabuka has to be recommended for its contribution to the quality of life and economy. However, many of the pollutants associated with agriculture in the district are “chemicals that can leach into the soil and contaminate the waters.”¹⁰¹ To obtain best yield, the Nakambala Sugar Estates uses fertilizers and pesticides. Such chemicals are rich in phosphates, nitrates and herbicides,¹⁰² which improves the quality of farm products. Nonetheless, these chemicals are frequently washed into the Kafue River causing severe pollution.

We do not intend to exhaust the challenges associated with water pollution but rather, to advance our discussion as an eye opener on what is happening regarding water pollution. Not limiting ourselves to water Pollution, let us turn our attention to Land Pollution in Mazabuka.

2.2.1.2 Land Pollution

To be more precise with the ecological situation in Mazabuka, we could state that: “The main sources of soil contamination are mechanized agriculture and industrial discharge and waste. The rampant overuse of fertilizer and pesticides in cropland and the seeping of toxic and heavy metals.”¹⁰³ The use of highly advanced machines, in the tilling of land for large-scale cultivation has not only increased the rate of sugar production in Mazabuka but also, caused soil erosion.

Agricultural science has it that: “Plant life is absolutely dependent on the thin, fragile layer of topsoil.”¹⁰⁴ Now, with the “whole batteries of destructive agricultural practices, human beings are depleting the soil causing massive soil erosion.”¹⁰⁵ The above is a situation that does not exclude Mazabuka. Again, in the process of looking for increased output, agriculture in Mazabuka uses chemicals and fertilizers. However, the uses of such chemicals cause “some deleterious collateral effects in terms of land pollution, with attendant consequence on human health.”¹⁰⁶ Adding to the DCF,¹⁰⁷ it is

¹⁰¹ KUREETHADAM, *Creation in Crisis*, 194.

¹⁰² Cf. KUREETHADAM, *Creation in Crisis*, 194

¹⁰³ JOSHHOM I. KUREETHADAM, *Creation in Crisis*, 192.

¹⁰⁴ MCDONAGH, *To Care for the Earth*, 28.

¹⁰⁵ MCDONAGH, *To Care for the Earth*, 28.

¹⁰⁶ KUREETHADAM, *Creation in Crisis*, 192.

¹⁰⁷ DCF is used in this case as an acronym of Deleterious Collateral Effects.

believed that the use of pesticides remains active in the soil for years.¹⁰⁸ Therefore, it becomes detrimental to the quality of the soil.

Mazabuka is predominantly an agricultural area. Nonetheless, a critical look at the Munali Nickel mining in Mazabuka also shows some effects of land pollution. The unfavourable conditions linked with nickel are *intensified land use* and the *emersion of greenhouse gases* into the atmospheric pressure that in turn causes acid rain while affecting soil quality.

The continuous throwing away of wastes and plastics in the district has increased the extent of land pollution. Indeed, due to the above throwaway culture, “the earth, our home, is beginning to look more and more like an immense pile of filth”¹⁰⁹ As we get slowly towards the heights of pollution, we cannot rest without touching pertinent issues connected with air contamination. For that matter, let us deal with air pollution.

2.2.1.3 Air Pollution

The high levels of air pollution today raise many health related questions. Often, it is regarded that, “outdoor air pollution is steadily increasing in many parts of the world as a result of economic and industrial growth, especially in the urban areas of developing countries.”¹¹⁰ Mazabuka, due to its economic and industrial situation, is as well facing unprecedented degree of air pollution.

We could mention that the burning of sugarcane at the Nakambala Sugar Estate, in as much as it makes it easy for the cane-cutters, the annual burning activity is becoming a contributing factor to an increasing air pollution. The above challenge includes the burning of forests, fossils and fuels from cars that has greatly increased in the town. We could also affirm that the toxic gases that are released into the air at the Nakambala Sugar Factory are dangerous pollutants health wise.

We should not forget that *indoor air pollution* is also a challenging fact especially in Mazabuka where the use of charcoal seems to be uncontrolled. In the world today, it is estimated that the use of biomass amounts to practically 10 per cent of today’s energy demands, more than that supplied worldwide by nuclear and hydroelectric power combined.¹¹¹ As we shall see, “the fast-growing sources of urban

¹⁰⁸ Cf. KUREETHADAM, *Creation in Crisis*, 192.

¹⁰⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 21.

¹¹⁰ KUREETHADAM, *Creation in Crisis*, 189.

¹¹¹ Cf. PAUL R. EHRLICH and ANNE H. EHRLICH, *The Dominant Animal: Human Evolution and the Environment* (Washington DC: Island Press, 2008), 226.

air pollution – have taken toll on air quality with serious consequences to the health of the population.”¹¹² Mazabuka is not left out from the above reality.

Water, land and air pollution are causing serious consequences on our climate today. For example, “spewing toxic substances into the air does not merely damage the air we breathe; it also contaminates the water, and affects woodlands and the soil.”¹¹³ The above has led to what is called, *phenomena Disparity*. What then has phenomena disparity has to do with the situation in Mazabuka?

2.2.2 Phenomena Disparities

Mazabuka could be regarded as a district that is located on what could be termed as a *rain-zone*; that is, an area that has enjoyed the rain seasons. However, in the recent years, people have started experiencing some ecological and *climate changes*. Traditionally, it was believed in Mazabuka that the beginning of the Month of October marked the beginning of the rain season, and people by then, had prepared their fields in readiness to plant. Today, the rain starts late, at times, if not the end of December, then, it would begin in January or February. This situation is alarming the people.

The strong winds that were being blocked by indigenous trees, while stabilizing the rain circle and reducing soil erosion, are now left free to erode the top soil that is good for farming. The above has been so due to the massive deforestation that has retched the district for extensive farming and charcoal burning.

The beauty of the natural forests is no longer experienced; huge sugar plantations have replaced them.¹¹⁴ With all forms of pollutions taking place, the climate is slowly changing. An area that experienced moderate weather is now part of the highly pronounced *global warming*. One comes to agree with a poetic proposition that: “The link between climate change and extreme weather is immediately perceived, in a rather intuitive way, by the people who live closest to the earth, attentive to the intricate rhythm of nature.”¹¹⁵ They are the local people, the poor who depend on the grants of the natural climatic condition, being referred to as those who live closest to the earth. They cannot afford the modern air conditions and refrigerators but enjoy the

¹¹² KUREETHADAM, *Creation in Crisis*, 190.

¹¹³ McDONAGH, *To Care for the Earth*, 24.

¹¹⁴ We acknowledge that extensive farming is important and necessary for the economy of the town and of the nation at large. It creates employment to the local people while enhancing their lives. However, it would be worthwhile to observe certain limits in the process of exploiting forests for economic demands. There ought to be a form of balance that respects the dynamics of the ecosystem.

¹¹⁵ KUREETHADAM, *Creation in Crisis*, 122.

fresh waters from the streams and cool breeze from the natural forests. But now, all the streams are polluted and all the trees are cut. There is no fresh water and no calm breeze.

The deference in nature, being labelled as ‘phenomena disparity’ is indeed perceived and experienced by the poor people of Mazabuka who live closest to the earth. Not only are they failing to access fresh drinking water and fine air from nature, their lives are becoming vulnerable and their relation with the totality of reality is being feared, because nature has been poisoned by human activities motivated by economy. It is in the above reasons that we further our discussion looking at the vulnerability of life and the other community of life.

2.2.3 Vulnerability of Human Life and the other Community of Life

The environmental damage that is experienced in Mazabuka, as we shall see, has become a danger to the lives of human beings and nature. It is affirmed that, “human beings too are creatures of this world, enjoying a right to life and happiness, and endowed with unique dignity.”¹¹⁶ As such, “we cannot fail to consider the effects on people’s lives of environmental deterioration, current models of development and the thruway culture.”¹¹⁷ What then are such effects?

2.2.3.1 Vulnerability of Human Life

With the above realization, we want to affirm that due to the extent of pollution in Mazabuka, human life is greatly threatened and put at risk. Let us consider the use of pesticides and fertilizers in the sugar plantation areas. It is true that in most agricultural activities, pesticides are used to control weeds and potentially disease-carrying insects.¹¹⁸ However, not much is said about the health hazards that could be caused, either directly or indirectly by pesticide. How about farm workers and other people who come into contact with such chemicals? Certainly, we do not mean to make a scientific approval on this matter. However, respiratory problems and cancer are some impacts of contact with excessive pesticide.

It is observable that fertilizers used in farming mostly are washed away into the Kafue River. The above reality reduces the quality of water. Hence, rendering health challenges to people who constantly use the water from the Kafue River. Even though the people are encouraged to treat the water, a larger population of people, especially

¹¹⁶ BREWER, *The Science of Ecology*, 647.

¹¹⁷ BREWER, *The Science of Ecology*, 647.

¹¹⁸ BREWER, *The Science of Ecology*, 650.

those living in fishing zones of the Kafue River, suffers the most. They have little access to health facilities as such, prone to diseases caused by water pollution.

The continued practice of deforestation due to large farms and charcoal burning, have left massive lands bare causing a semi-desert in the district. The charcoal used in many households, causes respiratory problems hence, detrimental to the health of human beings. Adding to the above are smokes that are produced from the burning of sugarcane, cars and the sugar factory itself, all these, as we have said earlier, renders health problems.

It would not be enough, to limit our observations only to the impacts likely to affect human beings. The ecological crisis in Mazabuka is inclusive of the totality of reality. As such, we turn our attention to see the effects of environmental dilapidation on other creatures.

2.2.3.2 Other Community of Life

Earlier on, we focused on the three aspects of pollution. We mentioned land, water and air pollution. We need to acknowledge that creatures of one form or another occupy the entirety of the earth.¹¹⁹ As such, any damage done on the earth, in one way or another, affects certain creatures. Since reality enjoys an indubitable interdependence, the damage on one creature amounts to a chain of problems in reality.

The sewages and other organic wastes, Chemicals (usually pesticides and fertilizers), the smokes from the burning of sugarcane, deforestation and other toxic materials have direct impact on the entire community of life. For example, most sewer systems and the washed away chemicals from the sugarcane fields in Mazabuka are connected into the Kafue River. Experience has shown that: “Certain population of humans have the habit of putting their wastes into water.”¹²⁰ However, what we forget is that, aquatic creatures could not always withstand pollutant material we inject into the waters. Reduction of oxygen levels in the Kafue River kill a number of fish and other aquatic organisms.¹²¹ Yearly, thousands of fish are observed dead in the River.

¹¹⁹ The earth is a primary inhabitant of different creatures. Yes! There is variety of creatures on earth. Some of which are creatures of the Land, others are that of the water and some enjoy the skies.

¹²⁰ BREWER, *The Science of Ecology*, 663.

¹²¹ Brewer Richard, in the Book, *The Science of Ecology 2nd Ed*, pp. 663, explains that the primary effect of stream pollution by sewage and other organic wastes is in providing large amount of food for decomposer organisms, mainly bacteria and fungi. The sewage fungus *Sphaerotilus* characteristically appears in organically polluted streams. The respiratory activity of the decomposers removes oxygen from the water, and many characteristic streams animals cannot tolerate the resulting low oxygen levels.

Deforestation for charcoal and agricultural demands, have reduced the natural forests that act as homes for other animals and birds. More to the above is the fact that: “the carbon dioxide content is now more than 30%. (...) Higher levels of carbon dioxide can have direct effects on organisms.”¹²² The trees that were supposed to absorb carbon dioxide have been cut while causing a phenomenon called the *Greenhouse Effect*.¹²³

It has to be mentioned that air pollution has got effects on the ecosystems. Not only does it affect human beings but also small creatures of the air such as birds and insects. Whenever there is a burning of sugarcane in Mazabuka, the smoke that is released into the atmospheric pressure threatens certain organism; birds and other animals that inhabited the sugar plantations are forced to migrate. Some of them die along the way by the huge fires and smoke.

The release of toxic gases from the sugar factory and Munali Nickel Mining could easily lead to acid rains, which is likely to be a serious environmental problem. The concentration of acid in rainwater can easily destroy plants. Even if the above problem could not easily be felt, what is true is that every time toxic substances are released into the atmosphere, they continue accumulating, and one day they could make a disastrous effect on the ecosystem.

Conclusion

Finally, we could affirm that the environmental problems in Mazabuka are real. Departing from the *economic human activities* and *Rapidification of life*, this section of our discussion has shown that anthropocentrism and negligence have led to serious ecological crisis of pollution and climate change. The above have led to risking human life and that of other creatures that inhabit on land, water and in the air. With that in mind, our next chapter therefore, focuses on addressing the environmental situation in Mazabuka while drawing insights from Laudato si.

¹²² BREWER, *The Science of Ecology*, 679.

¹²³ The *greenhouse effect* has to do with the amount of carbon dioxide in the air and the increased air warmth. It is scientifically believed that carbon dioxide is transparent to light but absorbed much of the energy in the infrared, or heat, wavelength. Consequently, when sunlight hits the earth and warms it, the heat radiation from the ground is absorbed by the carbon dioxide of the air. The result is that the air is warmed and so it is the earth. (From Richard Brewer, *The Science of Ecology*, PP. 679)

CHAPTER THREE: ADDRESSING THE ENVIRONMENTAL SITUATION IN MAZABUKA IN THE LIGHT OF LAUDATO SI'

Introduction

Having highlighted the teaching of Pope Francis in his encyclical letter “*Laudato Si*” on ecological integrity, the second chapter examined the environmental challenges being experienced in Mazabuka-Zambia. It was revealed that indeed, ecological crisis is a reality that cannot be ignored at all cost. We are faced with a pressing challenge that requires comprehensive and practical responses. Adhering to the above, this chapter therefore, addresses the environmental situation affecting Mazabuka by proposing a system we shall be calling, *The RA Process*. In this process, the “RA” acronym refers to *Renewal* and *Action*. While drawing insights from Pope Francis’ teaching in *Laudato Si*’, the discussion will bring out ideas pertaining *ecological renewal* while fostering *ecological action*.

Considering the detailed account regarding *The RA Process*, the ideas therein include: awareness of the “noble vocation” on the care for nature, ecological literacy, ecological interconnectedness that eventually finds culmination in creation spirituality as a form of *renewal process*. Furthermore, politics and economy in dialogue for human fulfillment, transparency in policy-making, principle of the common good and the ecology of daily life will sum up our treatise on *ecological action*. With that, let us advance by looking at *ecological renewal* as the first category in *The RA Process*.

3.1 Ecological Renewal

It is true that we are faced with a global situation of ecological crisis that requires our attention. The starting point perhaps could be a realization that we have broken a fundamental relationship with nature. Hence, there is an urgent need for *ecological renewal*. One way to fathom out the phrase *ecological renewal* is to dissect it in terms of *ecology* and *renewal*. As it was related to in the first chapter, *ecology* could be defined as “the study of the relation of living organisms or groups of organisms to their environment.”¹²⁴ Since humankind is part of nature, ecology could then imply that form of science that looks at human beings as ecologically related with other groups of living things and the universe at large. From a general understanding, we could describe *renewal* as a manner of resuming something after an interruption.

¹²⁴ EUGENE P. ODOM, *Fundamentals of Ecology*, 4.

Hence, a phrase *ecological renewal* could simply mean a manner of resuming a fundamental relationship between humankind and nature.

As human beings, present in nature, we owe a deep bond with the rest of reality. Odom suggests that, “living organisms and their non living (abiotic) environment are inseparably interrelated and interact upon each other.”¹²⁵ In a more profound elucidation, he adds that, “any area of nature that includes living organisms and nonliving substances interacting to produce an exchange of materials between the living and nonliving parts is an ecological system or ecosystem.”¹²⁶ In that sense, we can deduce that by the fact that we are part of the ecosystem, we are in a constant interaction and interchange of material substances with other earthly realities.

The constant interaction and exchange of materials needs constant replenishment for it to be more beneficial to both humankind and the rest of reality. However, the *Rapidification of life* in Mazabuka, as discussed earlier on, coupled with anthropocentric structures of economy, is constantly interrupting the profound ecological relation leading to a phenomenon called, *environmental dilapidation*.

To have a better response to the above reality, we need, first of all to realize that, we are called by one father into this universe, we are linked by unseen bonds, forming a universal family, filled with sacredness, affection and a sense of humble respect.¹²⁷ On the contrary, we have lost that ecological awareness of sacredness, affection and humble respect for all that exists. We have caused harm and inflicted pain with our irresponsible activities rooted in our deep desires for economic emancipation.

The restoration of an inseparable bond that we have preferred to call, “coming back home,”¹²⁸ could occur through an *ecological renewal process*. This is a movement from realizing our *Noble Vocation*, to acquiring *ecological literacy* while shaping our *conviction in the ecological interconnectedness*, that ultimately develop within us a

¹²⁵ ODOM, *Fundamentals of Ecology*, 10.

¹²⁶ ODOM, *Fundamentals of Ecology*, 10.

¹²⁷ Cf. FRANCIS, *Encyclical Letter “Laudato Si”* 91.

¹²⁸ “Coming back home” is an idea founded on Lk 15:11-32, *the story of the prodigal son*. From this story, we learn the irresponsible act of the other son who asked for his share from his father. Having been given with freedom what he had asked for, he went on and misused all that he gained from his father. The striking point comes when he realizes that he had wronged in his decision and so felt unworthy of being called son but rather, one of the servants. We too, have been irresponsible of the vast nature that God entrusted us with, have interrupted the natural bond that we are called from the beginning of creation to take care of. We are therefore invited to feel unworthy and so, the need to renew our relationship with God and the entire universe with a view to be servants and good stewards.

kind of *creation spirituality*. To clarify what is implied in that movement, it would be significant to have a close look at it, starting with our *noble vocation*.

3.1.1 Awareness of our “Noble Vocation” on the Care for Nature

Many people and organizations today are concerned with the status of the earth. They are urging each individual living on the earth and institutions operating in the universe to advance *life styles* and *methods of economic development* to those that put into consideration the well-being of mother earth. To take up the above invitation, it could be important to affirmatively state that the care for mother earth is a *Noble vocation*. To conceive the vocation above, let us consider the following:

God created man in his image; in the divine image he created him; male and female he created them. God blessed them saying: “be fertile and multiply; fill the earth and subdue it. Have dominion over the fish of the sea, the birds of the air, and all the living things that move on the earth.” God also said: “See, I give you every seed-bearing plant all over the earth and every tree that has bearing fruit on it to be your food; and to all the animals of the land, all the birds of the air and all the living creatures that crawl on the ground, I give all the green plants for food.” And so it happened. God looked at everything he had made, and he found it very good. (Gn 1:27-32)

If we reflect introspectively on the above passage, we get an insight that human beings share a unique worthiness in the image of God and so, rendering human dignity. Again, we come to realize the *noble vocation* of *subduing* and *dominion*. At times, the two concepts of *subduing* and *dominion* are misinterpreted. To avoid further misconceptions, let us understand the first as the call to be productive, and the later, as the call to care for all that is.

Another insight that we could learn from the Genesis story is an idea of *freedom* and *destiny*. By calling human beings to subdue the earth and have dominion over it, God entrusts them with a responsibility while instilling a sense of purpose. As such, we could conclude that, “man is a free, moral created being with an eternal destiny.”¹²⁹ The destiny in this sense is what we are calling, *the noble vocation*.

Entwined with an *eternal destine* is a call to recognize that we are called to fulfill the role in the world, that of improving it and caring for it. The above, though complex as it may sound, could be an adequate understanding of the Christian view on human vocation towards the natural world.¹³⁰ This vocation therefore, puts us into a social context that demands that all that we could do, including our engagement in

¹²⁹ JOSÉ MORALES, *Creation Theology* (Dublin: Four Courts Press LTD, 1994), 227.

¹³⁰ Cf. DIETER T. HESSEL and ROSEMARY R. RUETHER, ed, *Christianity and Ecology: Seeking the Well-Being of the Earth and Humans* (USA: Harvard University Press, 2000), 135.

social-economic development activities and the evolution of technology, ought to be founded on that noble vocation.

The various industrial and agricultural activities that are shaping the face of Mazabuka should always put us into the context of our vocation. We are not only called to explore the earth for economic benefits but also, considering that our call to be productive is paired with the care for the well-being of the earth. By so doing, certain risks such as pollution could be kept checked.

Earlier on, we talked of the profound link between God, humankind and other earthly realities. This understanding is profoundly rooted in the Genesis story we cited. We saw that God created humankind in his image and entrusted them with the earth and all it contained. The close link we are talking about is in line with the eternal plan that: “The Creator established man as lord of the physical universe, to rule it and use it for the glory of God.”¹³¹ Hence, the universe as it is, is a necessity to fulfilling the human vocation in the plan of God.

The abundant natural resources in Mazabuka are also there to help man fulfill his vocation. By building up balance between our economic needs and the well-being of the other communities of life in Mazabuka, we are not only satisfying our desire for economic emancipation but as well, responding genuinely to our noble vocation; in this sense, caring for mother earth and fulfillment in the glory of God.

The concept of *Rapidification* of life, in its exceptional understanding, could imply that today, we live in what is commonly said to be *the world of civilization and work*. Let’s believe that, looking at the historical development, “work has a massive impact on human life all across the world. Its attainments are staggering, evidencing the creativity of the human mind, and it has done an enormous amount to provide the material conditions for a better life.”¹³² In the face of the immense achievements in the world of civilization and work, we ought to remember that we are commissioned on earth for the good of all that is and the glory of God. The human mind and all its creative evidence, is a manifestation of God’s plan; that our presence and enormous creativity should be oriented towards the glory of God in whom we find fulfillment. That is our noble vocation and that is a realization of what God wants us to do.

Insisting on the realization of our noble vocation raises the problem of how we can know and spread this knowledge of our belonging and our responsibility towards

¹³¹ JOSÉ MORALES, *Creation Theology*, 228.

¹³² JOSÉ MORALES, *Creation Theology*, 227.

the well-being of the earth. Indeed, the ecological renewal process, in any case, ought to be coupled with some form of ecological knowledge. Hence, a look at ‘ecological literacy’ could be a key to realizing a gradual renewal process that we long to achieve.

3.1.2 Ecological Literacy

As in its preliminary understanding, it would be worthwhile to indicate that, the concept of *ecological literacy* could be well related with the same meaning that *ecological education*, *environmental education* or *ecoliteracy* convey. Thus, implying their synonymous usage in this treatise. The meaning behind ecoliteracy, without entering into its historical or semantic interpretations, signifies “an awareness of and concern about the environment and its associated problems, as well as the knowledge, skills, and motivations to work towards solutions of current problems and the prevention of new ones.”¹³³ Within this conception of ecoliteracy, we get to understand the goal of environmental education; that of creating awareness and collective sharing of knowledge so as to respond efficaciously to the ecological crisis affecting our time.

While considering the change that we need in the ecological sphere, it could be vital to note that, at the center of ecological crisis, it is above all, the human being who needs to change. The change in the “awareness of our common origin, of our natural belonging, and of a future to be shared with everyone,”¹³⁴ could be possible if we reflect on the goals and the depth of ecoliteracy. Considering the above, The Belgrade Charter suggests six *environmental educational objectives*¹³⁵ that could help us to have a better understanding of the purpose of ecoliteracy:

- 1. Awareness:** This objective of ecoliteracy is meant to help individuals and social groups acquire an awareness of and sensitivity to the total environment and its allied problems.
- 2. Knowledge:** This is supposed to help individuals and social groups acquire basic understanding of the total environment, its associated problems and humanity’s critically responsible presence and role in it.

¹³³ MCBRIDE B. BENSON, WILLIAM T. BORRIE and ALAN R. BERCKOWITZ, “Environmental Literacy, Ecological Literacy, Ecoliteracy: What do we mean and how did we get here,” *Ecosphere* 4(5) no. 67 (May 2013): 3.

¹³⁴ FRANCIS, *Encyclical Letter “Laudato Si,”* 202.

¹³⁵ JOSEPH BARRY, ed. *UNESCO-UNEP: Environmental Education Newsletter*, Vol. I, No. 1. (Paris: Unesco 1976): 2

3. Attitude: It is meant to help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement.

4. Skills: To help individuals and social groups acquire the skills for solving environmental problems.

5. Evaluation ability: It is oriented towards helping individuals and social groups evaluate environmental measures and education programs in terms of ecological, political, economic, social, esthetic and educational factors.

6. Participation: It is presumed that having gone through the above process, individuals and social groups will develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve those problems.

As we could draw from the above objectives, we could see that these educational goals follow an approach we could call, *all-inclusive approach*. Not only do they consider the basic knowledge that we need to understand the dynamics and ecological problems, they also look at developing attitudes, skills and evaluation abilities that could enhance responsibility and urgency in ensuring appropriate action.

As it could be viewed in *Laudato Si'*, ecoliteracy should not only be limited to the scientific acquisition of information, consciousness-raising and the prevention of environmental risks, but it should also include the critique of the “myths” of modernity grounded in utilitarian mindset.¹³⁶ Further to the above, environmental education should see to it that “various levels of ecological equilibrium, establishing harmony with ourselves, with others, with nature and other living creatures, and with God,”¹³⁷ are emphasized.

If we could fully agree with the deep meaning embedded in ecoliteracy, we could realize that for it to be grounded in the daily life of the people, “it needs educators capable of developing an ethics, and helping people, through effective pedagogy, to grow in solidarity, responsibility and compassionate care”¹³⁸ of mother earth. Perhaps the statement above may sound too technical to understand its implications. In as much as it calls for more formal established structures of ecoliteracy, it also calls for people at the grassroots to consider imparting knowledge,

¹³⁶ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 210.

¹³⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 210.

¹³⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 210.

attitudes, values, and ethics that prompt a compassionate care towards the well-being of the environment.

In Mazabuka for example, the basic structures where ecoliteracy could be concretized are families, workplaces and the entire human community. To address the ecological crisis being experienced in Mazabuka today, it would be important for individuals and families not only to acquire information but also cultivate “selfless ecological commitment.”¹³⁹ Indeed, selfless ecological commitment could be possible if parents and guardians teach their children the culture of compassionate care for anything that surround their life, if individuals and groups of people in Mazabuka learn that “there is nobility in the duty to care for creation through little daily actions.”¹⁴⁰ The little daily actions may include the avoidance of using plastic, ensuring that there is a measure and care for water consumption, segregation of refuse, planting trees and many other practices that at times may be taken for granted.

At a formal level, ecoliteracy could imply the formulation and implementation of effective educational pedagogy. The ministry of education in Zambia ought to see that there is an effective implementation of environmental educational subjects in primary schools, secondary schools, all tertiary learning institutes and religious structures inclusive. By emphasizing ecoliteracy at all levels, perhaps there could be a gradual development of a culture that respects our surrounding, a culture of hope for ecological restoration and a culture of compassionate care.

In its wholeness, *ecological literacy* ought to lead people to a profound conviction in the ecological interconnectedness, which result into a form of *creation spirituality*. Looking at the above and if we are to be honest to the *RA process* we earlier proposed, the *ecological renewal process* would get grounded and affirmed in the following discussion.

3.1.3 Creation Spirituality

At times crisis could paralyze the human person leading to failure in responding to a crisis. In some other occasions, crisis could help to build within us knowledge, ethics, skills, attitudes and to a better extent, a strong conviction in the dynamics of things and how they operate while gifting us with a culture of lifestyle that we have called “spirituality.”

¹³⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 211.

¹⁴⁰ FRANCIS, *Encyclical Letter “Laudato Si,”* 211.

In the idea of ecological crisis, maybe we could implore “creation spirituality.” History has it that “the rich heritage of Christian spirituality, the fruit of twenty centuries of personal and communal experience, has a precious contribution to make the renewal of humanity.”¹⁴¹ As we shall see later, when we begin looking at ‘developing a personal and communal creation spirituality, Christian spirituality has a role to play in all aspects of life including ecology. But before that, let us look at a patent factor that slowly could lead us, with our commitment, to developing creation spirituality.

3.1.4 A Conviction in the Ecological Interconnectedness

All the ideas we are putting across pertaining ecological renewal, are nothing if they do not lead us to a strong sense of belief in the unfathomable unity that exist among created things. In any case, it is our choice today, within our limitedness, to determine with a great sense of conviction, the destiny of ecological crisis in Mazabuka. In other words, it could be ultimately stated that: “Life is all about choices. One’s destiny unfolds according to the choice one makes.”¹⁴² We should not expect marvelous things to happen, not even miracles, if we do not awaken our inner attitude of conviction that we are dependent on earth.

To nudge gently towards *ecological renewal*, firstly, we need to *redirect our inner compass to believe in the cosmic unity and dependence that exists among created things*. Secondly, we need to further *believe that the beauty in creation is graced with a perfect uniqueness* and thirdly, a conviction ought to lead us to a “spiritual awakening to the power of the universe.”¹⁴³ If we believe in the above realities, we shall “not only marvel at the manifold connections existing among creatures, but also to discover a key to our own fulfillment.”¹⁴⁴ Already, we could see that, conviction, not only does it leads to personal discovery, it also gives birth and nurtures our passion to care for all that exist; simply because, we come to a realization that everything is interconnected and have a global bearing. Maybe, a consideration of the following would add meaning to what we imply:

Our Earth Mother is on the job twenty-four hours a day attending to the needs of her human children. She will go to any end to supply these needs. From early dawn and throughout the night she provides us with fresh air to fill our lungs with

¹⁴¹ FRANCIS, *Encyclical Letter “Laudato Si,”* 216.

¹⁴² ROBIN S. SHARMA. *The Monk Who Sold His Ferrari: A Fable about Fulfilling Your Dreams and Reaching Your Destiny* (New York: Harper Collins, 1997), 24.

¹⁴³ ROBIN S. SHARMA. *The Monk Who Sold His Ferrari*, 34.

¹⁴⁴ FRANCIS, *Encyclical Letter “Laudato Si,”* 240.

its oxygen for the functioning of our organs. She supplies fresh water that quenches our thirst and supplies essential elements we require for most of the chemical reactions that takes place in our bodies.¹⁴⁵

We do not need a proper or rather a scientific examination to understand what is implied in the above citation. A simple observation and attentiveness to our nature of being as humans would explain the perennial benefits that we get from Mother Earth and probably ignite a sense of conviction in our dependence on earth. As the people of Mazabuka, we are the living witness to what Mother Earth has done. As a land blessed with natural resources, we ought not to take it for granted that Mother Earth means a lot to our existence. Maybe we need to remember, celebrate, and give thanks for all the shepherding we have received from the earth resources in our lives.¹⁴⁶ That would be indeed a progressive state in our journey and process towards ecological renewal.

In as much as we emphasize the observable benefits that could easily explain the ecological interconnectedness, we could also mention the symbiotic relationship that exists between God, man and the universe. As Christians, we are obliged to state that the “One God who is Trinitarian communion suggests that the trinity has left its mark on all creation.”¹⁴⁷ Furthermore, “the divine persons are subsistent relations, and the world, created according to the divine model, is a web of relationships.”¹⁴⁸ In fact, we could conclude from the above teaching that, the mark that the trinity has left on all creation continues to influence the indubitable bond to tend towards God hence, maintaining harmony throughout the web of life.

The Trinitarian conception of the universal communion suggests that, the “Trinity and creation are related in such a way that creation is not brute “matter” but is the living word of God expressed in a rich diversity of living creatures.”¹⁴⁹ Certainly, if we reflect deeply on creation and its diversity, we come to realize that nature in its diversity, presupposes deep meaning and of course, purpose. With that in mind, it could be upheld with gratitude that, “creation is not a mere external act of God, an object on the fringe of divine power; rather, it is rooted in the self-diffusive goodness of God’s inner life and emerges out the innermost depth of Trinitarian life.”¹⁵⁰

¹⁴⁵ JOHN SURETTE, *The Divine Dynamic: Exploring the Relationship Between Humans, Earth, and the Creative Power of the Universe* (USA: Acta publications, 1989), 49-50

¹⁴⁶ JOHN SURETTE, *The Divine Dynamic*, 50.

¹⁴⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 239.

¹⁴⁸ FRANCIS, *Encyclical Letter “Laudato Si,”* 240.

¹⁴⁹ ILIA DELIO, KEITH D. WARNER and PAMELA WOOD, *Care for Creation*, 82.

¹⁵⁰ ILIA DELIO, KEITH D. WARNER and PAMELA WOOD, *Care for Creation*, 82-83.

Therefore, environmental rebirth or ecological renewal implies coming to the above realization, that creation is not for nothing, creation is the other face of God if we are to put it that way. Our desire in this case, as the people of Mazabuka is to develop a conviction that we are part of the vast reality, united with strong bonds guiding us to tend towards God.

At the center of ecological interconnectedness is the reality of “self-communication of relationship and creative love.”¹⁵¹ In this dynamism, God communicates his eternal love to the rest of creation and so, we are called to be humble and learn to live the love of God in our world today with all creation. However, that call could only be materialized by living a form of life-style that we have preferred to call, *creation spirituality*. Without entering into details, let us look at this form of life-style and how it could help to reduce the ecological dilapidation in Mazabuka.

3.1.5 Developing a Personal and Communal Creation Spirituality

It could be logically argued that, with the level at which the economic prospects are determining the life of people in Mazabuka, thinking of *creation spirituality* (CS) could sound illusory. However, no matter illusory it may sound to talk about creation spirituality, looking at the level of environmental crisis in Mazabuka, resulting from economic pressure and other factors, creation spirituality therefore would be relevant to cultivating a culture of life that is determined to strive for ecojustice. In a strict sense, creation spirituality could be regarded as the summit of the *ecological renewal process*.

It is believed that “the human person grows more, matures more and sanctified more to the extent that he or she enters into relationship, going out from themselves to live in communion with God, with others and with creatures.”¹⁵² This understanding is therefore, the basis for creation spirituality. Not only does it deepen our reverence for God, creation spirituality also propels us to live in communion with the earth community, developing our passion for its well being while contributing to the global cooperation in the creative transformation of the earth.

It would be worthwhile to understand that the global cooperation for the transformation of the earth is first and foremost, the initiative of God. Similar to that, we could agree to a statement that suggests that, “God’s Spirit is the cosmic basis of

¹⁵¹ ILIA DELIO, KEITH D. WARNER and PAMELA WOOD, *Care for Creation*, 83.

¹⁵² FRANCIS, *Encyclical Letter “Laudato Si,”* 240.

cooperation and the power by which cooperation advances to compassion.”¹⁵³ Since God is the basis of all and His Spirit of cooperation flows through all creation, it is a fact that everything is interconnected, and this invites us to develop a spirituality of that global solidarity which flows from the mystery of God.¹⁵⁴ A person and the community that nurtures their way of life towards the importance of eco-justice, the spirit of God would inspire in that person and community the infinite bond of love that would slowly bring new pathways to combating the ecological crisis.

In line with creation spirituality, there is an emphasis on Christian spirituality that “proposes an alternative understanding of the quality of life, and encourages a prophetic and contemplative lifestyle, one capable of deep enjoyment free of the obsession with consumption.”¹⁵⁵ A deep lifestyle free of obsessed consumption is indeed what the people of Mazabuka need. But, to develop gradually to this form of life-style or spirituality, we need a strong awareness of our noble vocation, to be informed on the dynamics of nature and slowly be convinced in the divine communion in the universe. And that is what takes place in the *ecological renewal process*.

The *ecological renewal process* will in turn give rise in each individual and community, “to be serenely present to each reality, however small it may be, opens us much greater horizon of understanding and personal fulfillment.”¹⁵⁶ In so doing, respect for the totality of creation will be marked by moderation in the consumption of natural resources in Mazabuka whilst considering the well-being of the coming generation.

Laudato Si’ adds that Christian spirituality promotes the simplicity of lifestyle, “which allows us to stop and appreciate the small things, to be grateful for the opportunities which life affords us, to be spiritually detached from what we possess, and not to succumb to sadness for what we lack.”¹⁵⁷ At the center of it all, is the avoidance of possessiveness and obsessed accumulation of pleasures that might not contribute to the global solidarity and the natural well-being of the community of life.

In fact, some scholars make a difference between what they call the “consumer” and a “frugal person”. The latter uses what he or she needs, whereas the

¹⁵³ CURTIS L. THOMPSON and JOYCE M. CUFF, *God and Nature: A Theological and a Scientific Conversing on the Divine Promise of Possibility* (New York: Continuum, 2012), 198.

¹⁵⁴ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 240.

¹⁵⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 222.

¹⁵⁶ FRANCIS, *Encyclical Letter “Laudato Si,”* 222.

¹⁵⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 222.

consumer needs more than one can use and thus consumes.¹⁵⁸ Hence, a call for creation spirituality is an invitation to being a frugal person or frugal community, to grow in our relationship with God, develop the peaceful life-styles in our relation with nature and avoid anthropocentric tendencies while nurturing those predispositions that look at the global integrity of creation. As our context suggests, to fight the ecological injustices affecting the people of Mazabuka, certainly, adhering to creation spirituality would indeed be a step towards the reduction of some environmental problems that are worrying the people and the larger community of beings in the area.

We have seen what the ecological renewal process entails. From a realization of our noble vocation; that is, care for nature, to an informed conviction and growth in creation spirituality both at the individual and communal level. However, ecological renewal by itself is not enough. We need action. Hence, the following part of our discussion focuses on the *Ecological Action* as a practical dimension in the *RA process* we have implored.

3.2 Ecological Action

As a dimension that emerges from *ecological renewal*, *ecological action* could be understood as a process of doing something with a purpose typically of achieving *ecological integrity*. In a global context, the action of every individual, especially in the political and economic sphere, is a necessary value for human fulfillment. As such, this discussion attempts to present the dialogue that ought to exist between politics and economy in policy and decision-making while considering the common good for ecological balance. Furthermore, it shall affirm the need for the ecology of daily life.

3.2.1 Politics and Economy in Dialogue for Human Fulfillment

Looking at the extent of environmental crisis in Mazabuka and Zambia at large, there is a need to emphasize an honest dialogue between politics and economy. Before entering into further explanations, certainly, it would be worthwhile to understand what we mean by *politics* and *economy*. Basically, politics could be understood as an “activity involved in getting power in public life, and being able to influence decisions that affect a country or society.”¹⁵⁹ Whereas economy, from a general perspective, could mean “the relationship between production, trade and the supply of money in a

¹⁵⁸ ILIA DELIO, KEITH D. WARNER and PAMELA WOOD, *Care for Creation*, 175.

¹⁵⁹ SALLY WEHMEIER, COLIN MCLINTOSH and JOANNA TURBULL, ed. *Oxford Advance Learner's Dictionary: International Student edition 7th ed* (New York: Oxford University Press, 2005), 1122.

particular country or region.”¹⁶⁰ What is at the center of both activities includes governance, influencing, production and the supply of resources in the country. All these are oriented towards the service of life.

Questions that we can raise from the implication of politics and economy could be: How does industrialization and production in Mazabuka reflect on the environmental damage? To what extent does the government ensure that the work of production safeguards the well-being of the environment in their decision-making process? Indeed, it is from the above questions that the idea of dialogue between politics and economy comes in, hence, rendering ecological action.

Observably, production of sugarcane in Mazabuka for example is not always rational. This is to the extent that most of the waste products at the sugar factory have an environmental impact, which is mostly overlooked. The extensive cultivation of land as well, ignores the climatic change it comes with and seemingly, no one stands to challenge the system. The agrochemicals used, not only do they promote the quality and quantity of production but they also harm the environment and the people involved in the work. The companies involved in this form of production are of high profile on the global market. As such, a simple person would find it difficult to challenge the system. Hence, for the reason of ecological action and integrity, it is important that the government enters into proper and frank dialogue with the companies so as to come up with forms of productions that are not only focused on profit but also the environment and human fulfillment.

We cannot deny absolutely that there are efforts being done to address the environmental crisis in Mazabuka resulting from the waste products at the sugar company. However, there is need to strengthen the interchange of ideas between the government and industrial companies, to ensure that rational means of production and investment are put in place for economic benefits and also, human and environmental well-being.

To some extent, we could agree with the fact that: “Many companies and managers have adopted the vocabulary and cosmetics of more reciprocal practices, but without overhauling the link between self-interest and rationality.”¹⁶¹ Yes, there is no thorough examination of the impacts the systems of production have on the

¹⁶⁰ SALLY WEHMEIER, COLIN MCLINTOSH and JOANNA TURBULL, ed. *Oxford Advance Learner's Dictionary*, 466.

¹⁶¹ JOHN D. COSTA, *The Ethical Imperative: Why Moral Leadership is Good Business*. (USA: Perseus Publishing, 1998), 43.

environment. Therefore, ecological action, in relation to political and economic dialogue ought to be rooted with a kind of openness that is free from hypocritical and cosmetic reciprocal practices that are self-interest based and lack rationality or consideration for a global ecological justice.

Whatever the case, this dialogues could only be possible with transparency in policy and decision-making process. With that in mind, let us look at the idea of transparency in policy and decision-making.

3.2.2 Transparency in Policy and Decision-Making

As we talk about transparency in policy and decision-making, we have in mind a social context. Those in position of governance for example, ought to formulate and implement policies, in such a way that they are participatory and easier for others to perceive the clarity of impacts policies may bring to the people and the environment.

Transparency in policy making is of high importance to the well-being of the nation, stakeholders and the public at large hence, there ought to be a free exchange of views when it comes to the exploitation of the environment for economic demands. Ecological action therefore, emphasizes the need to have a thorough assessment of the environmental impacts of any form of business venture and project implementation. In this case, research, clarity of findings and openness ought to act as a measure for decision-making and enactment.

With regard to the ecological situation in Mazabuka and the rampant extensive modes of production, policy and decision-makers should see to it that, a consensus between different stakeholders, the local population concerned and the government is reached with clarity and accuracy.¹⁶² Most of the modes of production in Mazabuka are only concerned with the immediate economic interests. Such practices disregard the possible risks that could be generated by certain modes of production. As such, “in any discussion about proposed ventures, a number of questions need to be asked in order to discern whether or not it will contribute to genuine integral development.”¹⁶³ In this way, the reasons for any project will be assessed in terms of goals, benefits, possible risks pertaining the environment and the cost. To be more technical, let us consider the fact that:

The importance of economic policy research and advice arguably lies in three areas. Firstly, is in provision of hard data and about its expected development. Secondly, is in the interpretation of these data according to economic principles.

¹⁶² Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 183.

¹⁶³ FRANCIS, *Encyclical Letter “Laudato Si,”* 185.

Together, these form the basis of an informed process of decision-making, of a discussion of the cost and benefits as well as risks of particular courses of action. The third area of importance is to inform the public on the economy and policy options, to underpin public discussion and thus strengthen governance.¹⁶⁴

Following strictly the areas mention in the text above, we come to realize that research, data interpretation and involvement of the public in policy-making process is of vital importance. Therefore, if transparency and accuracy in data gathering, interpretation and implementation of certain projects in Zambia was strictly considered, we would not have been seeing the massive death of fish in the Kafue River caused by the discharge of waste products and sewages from the Nakambala Sugar Factory. Perhaps, global warming that is due to deforestation for extensive farming and charcoal burning in Mazabuka would not have been the challenge of our time.

In the face of possible environmental risks resulting from the imbalance between politics and economy, the consideration of the “common good” underpins what should be done. Laudato si’ argues that, “human ecology is inseparable from the notion of the common good, a central and unifying principle of social ethics.”¹⁶⁵ Without preempting the idea, let us consider the notion of the common good in relation to ecological action and environmental restoration in Mazabuka.

3.2.3 Consideration of the “Common Good”

To have a better understanding of the common good, it would be significant to reaffirm that; “every day human interdependence grows more tightly drawn and spreads by degree over the whole world.”¹⁶⁶ In other words, the need for one another in the world would be perennially inseparable. Hence, there is need to realize and readjust the human condition in line with the principle of the common good which is “the sum of those conditions of social life which allow social groups and their individual members relatively thorough and ready access to their own fulfillment.”¹⁶⁷ Underlying the above statement is respect for the human person and the overall welfare of society.¹⁶⁸

¹⁶⁴ ELIAS T. AYUK and MOHAMED A. MAROUANI, ed, *The Policy Paradox in Africa: Strengthening links Between Economics, Research and Policymaking* (New Jersey: Africa World Press, 2007), 220.

¹⁶⁵ FRANCIS, *Encyclical Letter “Laudato Si,”* 156.

¹⁶⁶ SECOND VATICAN COUNCIL, *Pastoral Constitution on the Church in the Modern World: “Gaudium et Spes”* (7th December 1965). Nairobi: Paulines Publication, 1990, 26.

¹⁶⁷ FRANCIS, *Encyclical Letter “Laudato Si,”* 156.

¹⁶⁸ Cf. FRANCIS, *Encyclical Letter “Laudato Si,”* 157.

In the present situation where human rights are less regarded and environmental well-being is neglected due to anthropocentric attitudes in economic ventures, upholding the common good in decision-making processes is indeed inevitable. It implies that, transparency in policy-making would not only be limited to economic gains of a particular project, but a genuine consideration of the common good would as well engage social groups and the general public in the implementation of *Sustainable Development Goals* (SDG). As such: “When a project may lead to a greater use of Natural resources, higher levels of emission or discharge, an increase of refuse, or significant changes to the landscape,”¹⁶⁹ the project ought to be evaluated. If tarrying results from different research institutes, indicates possible results of risks then, a project could be discontinued or suggest other ways of operation that could be free from immediate and future risks.

As we could witness in Mazabuka, the operation of industries and the sugar plantations in particular, demands not only the intervention of stakeholders and groups of people that are concerned with the need for ecological integrity but also, the government to enact certain policies that could moderate operations that lead to environmental dilapidation and reduction in the quality of life.

Our emphasis has been thoroughly on the need for proper dialogue between economic venture and politics, specifically on the need for transparency in policy and decision-making. We have as well highlighted that policies and economic ventures have to operate based on the common good. Adding to the above and in order to make ecological action a lived reality is a call for *the ecology of daily life*. What is it and how could it be a necessary value in responding to the ecological crisis in Mazabuka?

3.2.4 The Ecology of Daily Life

To bring about integral development in the quality of life in Mazabuka, it would be important that everyone at all sectors of life gets involved. As in line with the Earth Charter, “everyone shares responsibility for the present and the future well-being of the human family and the larger living world.”¹⁷⁰ Similarly, a poetic testimony has it that, if “we wish for something better rather than realizing that often everything we’re actually searching for lies exactly where we are. We just need to look a little deeper.

¹⁶⁹ FRANCIS, *Encyclical Letter “Laudato Si,”* 184.

¹⁷⁰ CORCORAN P. BLAZE, VILELA MIRIAN and ALIDE ROERINK, eds, *The Earth Charter in Action: Towards a Sustainable World* (The Netherlands: KIT Publishers, 2005), 2.

To try a little harder. And to lead a little better.”¹⁷¹ More to that, we could say that at all cost, every one of us in Mazabuka and Zambia at large has the responsibility to reflect a little deeper and be a leader at addressing environmental problems.

Earlier on, we discussed the importance of cultivating what we called, *creation spirituality*. In as far as ecological action is concerned, creation spirituality has to be rooted in the setting of the people, the way we think, feel and act towards the environment. It is in being convinced that our identity as human beings, is intrinsically rooted, and holds a profound belonging to the totality of creation. As such, the ecology of daily life encourages care for the interior of our homes, work places, schools and the surrounding areas. In this case, a family therefore becomes a primordial element to ensuring that children are brought up with a great consciousness for the care of creation.

It is in this line that parents, teachers in schools and pastoral agents in Churches would teach their children and faithful how to plant trees, avoid unnecessary wasting of food, water and above all, making a discernment between needs and greed. While upholding the above culture of life, the ecology of daily life will inspire in us a realization of “the relationship between human life and moral law, which is inscribed in our nature and is necessary for the creation of a more dignified environment.”¹⁷² Consequently, if we want green environment in Mazabuka, we should learn to plant trees, avoid the throw away culture of plastic bottles and other non-biodegradable substances. That is what fulfilling ecological action presupposes.

Furthermore, we have to believe that “the spirit of human solidarity and kinship with all life is strengthened when we live in reverence for the mystery of being, gratitude for the gift of life, and humility regarding the human place in nature.”¹⁷³ Indeed, we could realize that, at the center of everything, the ecology of daily life, if practiced in Mazabuka, would help us to accept that we are part of the mystery of creation and creation is a gift from God hence, caring for all that contribute to human welfare entails a response to our *noble vocation*; that of caring for mother earth.

¹⁷¹ ROBIN SHARMA, *A Leader Who Had No Title: A Modern Fable on Real Success in Business and in Life* (New York: Free Press, 2010), 60.

¹⁷² FRANCIS, *Encyclical Letter “Laudato Si,”* 155.

¹⁷³ CORCORAN P. BLAZE, VILELA MIRIAN and ALIDE ROERINK, eds, *The Earth Charter in Action*, 2.

Conclusion

Our discussion in this chapter was aimed at addressing the environmental situation in Mazabuka. In the light of *Laudato Si'*, the chapter has hinted out that to bring about ecological integrity in Mazabuka, we need an ecological process that is based on *ecological renewal* and *ecological action* (Expressed with an acronym *RA Process*). It has further articulated that ecological renewal has to be accompanied with an awareness that we have broken our profound bond with nature due to our egocentric attitudes, as such, we need to come back and reaffirm our noble vocation of caring for the totality of reality in our capacity. By developing a spirituality of creation, we could be convinced and dedicate our lives, to *ecoliteracy* and learn possible ways of responding to the crisis of our time in the area.

At the level of *ecological action* in politics and economy, the chapter has advocated for dialogue and transparency in policy and decision-making, of course, basing on the principle of the common good. Finally, cultivating the *ecology of daily life* has cemented everything that could imply *ecological action*.

GENERAL CONCLUSION

The focus of our discussion in this paper was to understand ecological integrity according to *Laudato Si'* and how it stands to be a significant document in addressing the environmental situation in Mazabuka district of Southern Zambia. In our preliminary statements, we saw that the environmental situation in Mazabuka is alarming hence, calling for practical responses that could help us address the crisis at hand.

While presenting the teaching of *Laudato Si'* in its entirety, we came to realize that the document, first and foremost, calls us to reaffirm *our noble vocation*; that of caring for all that exists. Indeed, as part of our human existential aspect, we have the duty to care for the earth that God has entrusted us with. Let us believe that nature is our common good and that without her, we cannot talk of our existence. In this way, we owe our existence to nature and all it contains. It is from the above perspective that *Laudato Si'*, while referring to the *principle of the common good*, affirmed that creation belongs to all and is meant for all. Therefore, by the fact of nature's being relevant to human existence, humanity is called to be in constant care for mother earth.

Whilst reflecting on the extent at which the earth has been dilapidated, *Laudato Si'* invited the people to undergo through a process of ecological renewal. Certainly, our change of attitude is indeed a significant value to fighting the ecological problem that we are facing in our time. This change of attitude in the first place, has to look at creation as the primary revelation of the glory of God. We could witness for example that; order in the universe is a perfect manifestation of a creative higher being (God). As taught in *Laudato Si'* the revelation of creation as a joyful mystery should awaken in us fundamental values of compassion, care and love for the betterment of our common home.

Ecological integrity as well is based on a profound unity that exists between human beings, nature and God. *Laudato Si'* further added that the safeguarding of harmony in the universe, not only does it sustain the universal communion but, it also awakens within us a realisation that we are part of the universe. Therefore, whatever crisis faced, ought to be the concern of every rational and conscious inhabitant of the earth. By giving an example of Jesus' pre-existence, involvement and relationship with creation, the arguments in *Laudato Si'* invited everyone of us to learn from him as our master in caring for the well-being of the entire creation.

Regardless of our noble vocation as explained in *Laudato Si'*, it is observable that today, the world is experiencing an environmental crisis that cannot be overlooked. As stated in chapter two of our discussions, Mazabuka District is one among many places in the world whose environmental situation requires a materialization of the teaching of *Laudato Si'*.

Looking at the speed of life and the social economic activities taking place in the district, it is clear that our environment demands some forms of restoration. As presented earlier, the industrial, technological and extensive agricultural practices taking place in Mazabuka have led to major issues of environment quandary. Today, we are witnessing all forms of pollutions; lose in diversity of creatures and phenomenal disparity due to anthropocentric attitudes and negligence in our way of doing things. Human life and other community of life such as fish have become vulnerable. The washing away of agrochemicals from the Nakambala Sugar Estate (NSE) into the Kafue River has led to annual death of fish. The consumption of contaminated water in the district has really become a danger to human life. With all these and other ecological problems mentioned, it has been significant to reflect at *Laudato Si'* and its value in addressing the environmental situation while restoring the integrity of creation.

To respond profoundly to the crisis in Mazabuka, in the light of *Laudato Si'* the last part of our discussion has suggested a method that we have preferred to call *Renewal Action Process*. In the RA process, the paper is calling for a realisation that we have broken a fundamental relationship that exists between humanity, nature and God. As such, there is a need to come back to our original union with the totality of being. By revamping our noble vocation, endeavouring on ecoliteracy, entering into personal and communal spirituality, we are likely to re-establish our attitudes and belief in the cosmic unity hence, inspiring us to take up practical measures to care for the earth.

The practical measures, which correspond to *Action Process* in our *RA Process*, in as much as they need personal commitment, there is as well a need, at a political level to strengthen dialogue between politics and economy. As stated in the last chapter, there could be no human fulfilment in Mazabuka and Zambia at large if policies and decisions pertaining the exploration of natural resources are based on personal interest and weak research and data analysis with regard to impacts that could affect the global community of life. Henceforth, the paper has advocated for

transparency in policy making and a consideration of the common good in the implementation of economic projects.

Besides political and economic dialogue, the discussions in this inscription have emphasised the need for *the ecology of daily life*. The ecology of daily life has simply been understood as a culture of life that instils the virtue of responsibility at every sphere of life. Additionally, it has been insisted that families, schools, workplaces and even religious institutions are the primary places for the realization of our noble vocation. It is indeed in such places that children and even adults could be taught to plant trees, avoid the use of plastics and other possible ways that could promote the integrity of creation.

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