

**Environment, Livelihoods and the Church in Mozambique: A
Theological Reflection**

By

Anastase Nzabilinda

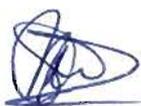
**A thesis submitted in partial fulfilment of the requirements for the
degree of Masters of Theology (Theology and Development) in the
School of Religion and Theology, University of KwaZulu-Natal,
Pietermaritzburg**

Supervisor: Dr. Steve de Gruchy

March 2005

Declaration

I, Anastase Nzabilinda, hereby declare that this thesis, unless specified in the text, is my original work. I also declare that I have not submitted this research project for any other purpose at any other Institution or University.



Anastase Nzabilinda

14. 3. 05

Date

As supervisor, I agree to the submission of this thesis



Dr S.M. de Gruchy

14 - 3 - 05

Date

Abstract

This thesis concerns the relationship between poverty and the environment in Mozambique, and the response that is required from the Church. It is a way to describe and analyse the situation, and also to provide possible strategies for the Church.

The thesis begins by providing a general overview of the environmental crisis in Africa at present. Then, drawing on field-work in the Matutuine District of Mozambique, and making considerable use of the Sustainable Livelihoods Framework, it provides an in-depth description and analysis of people's livelihood strategies, noting the strong link between poverty and the environment, and how there is a cause and effect relationship between them. In order for the Church to respond in an adequate fashion, the thesis provides theological resources for caring for the environment, and then ends with a range of strategies which the Church can be engaged in.

The key findings of the thesis are that, given the immense vulnerability of the poor in Mozambique, households have very little access to human, social, financial and physical capital, and so are forced to rely upon the existing natural capital for survival. Livelihood strategies involve subsistence farming, charcoal production and hunting, all of which deplete the natural resource base, and yet there is no commitment to restore the base which provides these things. Thus these strategies are unsustainable and require a response from the church.

The thesis concludes with a range of practical strategies for the Church including awakening people to their obligations as creatures on earth, being involved in holistic mission, responding to pollution, deforestation and land degradation, contributing to and enhancing existing livelihood strategies, contributing to food security, and supporting people in small scale farming practices.

Acknowledgments

Thanks to our Almighty God, the author and the sustainer of my life. It is by his grace that this dissertation has been produced.

I owe a debt of gratitude to many people without whose assistance and critical comments this study would no have been possible.

Special thanks are directed to my Supervisor, Dr. Steve de Gruchy for accepting me into the Theology and Development Programme, for his humble commitment and unceasing patience, and for his constructive comments, all of which sharpened my focus.

SIM International and different individuals for financial support without which this work would not have been possible.

Finally, my heartfelt thanks to my dear wife Immaculée and our daughter Nicole for bearing with me during the research process.

Table of contents

Declaration.....	ii
Abstract.....	iii
Acknowledgments.....	iv
Table of contents.....	v
Abbreviations.....	x

Chapter One: INTRODUCTION TO THE STUDY

1.0. Introduction.....	1
1.1. Motivation for the research.....	2
1.2. Preliminary literature study.....	3
1.2.1. Resources on environment.....	3
1.2.2. Resources on sustainable livelihood approach	6
1. 3. Research problem.....	8
1.4. Theoretical framework.....	8
1.4.1. Theological framework.....	8
1.5. Research design and methodology.....	9
1.5.1. Research design	9
1.5.2. Data collection	10
1.6. Limitations of the research.....	11
1.7. Outline of chapters.....	11

Chapter Two: THE ENVIRONMENTAL CRISIS AS A DEVELOPMENT ISSUE FOR AFRICA

2.0 Introduction.....	14
2.1. Our environment is our life.....	15
2.2. Our environment is facing many challenges.....	16
2.2.1 Heavy reliance on natural capital.....	16

2.2.2. Extreme poverty along with very fast population growth	16
2.2.3. Urbanization and migration	17
2.2.4. Global environmental impact.....	18
2.3. Evidence of environmental crises in Africa.....	19
2.3.1. Land degradation	20
2.3.2. Pollution.....	23
2.3.2.1. Water pollution	23
2.3.2.2. Air pollution.....	25
2.3.2.3. Litter.....	26
2.3.3. Deforestation.....	26
2.3.4. Desertification.....	28
2.3.5. Wildlife under siege.....	29
2.3.6. War and environment.....	29
2.4. Environmental crises as a result of people's livelihood strategies in Mozambique ..	30
2.4.1. Geographical context of Mozambique.....	30
2.4.2. The economico-historical situation of Mozambique	32
2.4.3. Linking environmental crises with people's livelihood strategies.....	33
2.4.3.1. Population growth and distribution.....	33
2.4.3.2. Water and soil pollution.....	34
2.4.3.3. Environmental impact of mining	34
2.4.3.4. Threatened ecosystems	35
2.4.3.5. Deforestation.....	35
2.4.3.6. Natural disasters, drought, and desertification.....	35
2.5. Environmental degradation as a challenge to development in Africa	36
2.5.1. Environmental degradation has an impact on food security.....	36
2.5.2. Environmental degradation has a great impact on health	37
2.6. Model of our relationship to nature: An environmental ethics	40
2.7. Conclusion	40

**Chapter Three: FIELDWORK: ENVIRONMENT AND LIVELIHOODS IN
MATUTUINE DISTRICT, MAPUTO-MOZAMBIQUE**

3.0. Introduction.....	42
3.1. About Matutuine District	42
3.2. Environmental crisis in Matutuine District.....	44
3.3. The Link between environmental degradation and making an every day living	45
3.3.1. People’s key struggle to making a living.....	46
3.3.2. People exploit the environment for survival in an unsustainable way.....	46
3.3.3. People kill animals for their survival	47
3.3.4. People burn bush to hunt ‘ <i>ratazana</i> ’	48
3.3.5. People cut <i>estaka</i> to build homes.....	48
3.4. Beliefs, values and mindsets behind this link	49
3.4.1. Unity and harmony of creation as an African view	49
3.4.2. Why then this environmental degradation?	50
3.4.2.1. Some beliefs, mindsets and values.....	50
3.4.2.2. People degrade the environment for their means of survival	52
3.5. Conclusion	52

**Chapter Four: ANALYSIS: ENVIRONMENT AND LIVELIHOODS IN
MOZAMBIQUE**

4.0. Introduction.....	54
4.1. Introducing Sustainable Livelihoods	54
4.2. Overview of the SLF as applied in the context of Mozambique.....	56
4.3. Analysis of livelihoods in Mozambique with the SLF	57
4.3.1. First element: Vulnerability context	57
4.3.2. Second element: The livelihood asset portfolio.....	60
4.3.2.1. Human capital.	61
4.3.2.2. Social capital	62
4.3.2.3. Physical capital	63

4.3.2.4. Financial capital	64
4.3.2.5. Natural capital	65
4.3.3. Policies, institutions and processes	66
4.3.3.1. Adjustment to poverty situation.....	67
4.3.3.2. Market economies versus environmental policies.	68
4.3.3.3. Political breakdown	69
4.3.3.4. Urbanization and the urban environment.....	70
4.3.4. Fourth element: Livelihood Strategies.....	70
4.3.5. Livelihood outcomes.....	73
4.3.5.1. Positive outcomes	73
4.3.5.2. Negative outcomes.....	74
4.4. The missing link.....	76
4.4.1. Poverty as the main cause of environmental degradation.....	76
4.4.2. There is a lack of understanding regarding environmental issues	78
4.5. Conclusion	78

**Chapter Five: THEOLOGICAL RESOURCES FOR CARING FOR
THE ENVIRONMENT**

5.0. Introduction.....	79
5.1. Religion and the environment	79
5.2. The Stewardship of creation	81
5.3. Human beings as the stewards and the caretakers of God's earth	82
5.3.1. The earth and everything in it belong to God and reveal him	82
5.3.2. God designed human beings to work as good stewards	83
5.3.3. Human beings are to maintain the creation order	85
5.4. Christians are to promote life through caring for the environment	85
5.5. Jesus and Environment	86
5.5.1. Redemption through Christ.....	86
5.5.2. Reconciliation through Christ.....	86
5.5.3. Jesus as an environmentalist	87

5.6. Concern for Livelihoods	87
5.7. Conclusion	90

**Chapter Six: THE RESPONSE OF THE CHURCH TO ENVIRONMENTAL
DEGRADATION AND SUSTAINABLE LIVELIHOODS.**

6.0. Introduction.....	91
6.1. The church in action towards a sustainable environment in Mozambique.....	91
6.1.1. Awakening people to their obligations as creatures on earth	92
6.1.2. The Church’s holistic involvement.....	93
6.1.3. The Church’s response to different environmental issues	94
6.1.3.1. Church’s response to pollution	94
6.1.3.2. The Church should act against deforestation	95
6.1.3.3. The Church’s contribution in addressing land degradation	96
6.2. The church’s contribution to Livelihood Strategies.....	97
6.2.1. Enhancing and changing Livelihood Strategies.....	98
6.2.2. Addressing poverty in Mozambique	98
6.3. The church should contribute toward food security in Mozambique	100
6.3.1. Supporting people in their small scale farming practices	101
6.4 Conclusion	102

Chapter Seven: GENERAL CONCLUSION AND RECOMMENDATIONS

7.0. Introduction.....	103
7.1. The link between the environmental degradation and livelihoods as crucial	103
7.2. At the heart of this link is poverty	104
7.3. Now is the right time for the church to act	105
7.4. More participants needed in this struggle	105
7.5. Conclusion	106

Bibliography	107
--------------------	-----

Abbreviations

AIM	Mozambique Information Agency.
AMCEN	African Ministerial Conference on the Environment.
CCM	<i>Conselho Cristao de Mocambique</i> (Christian Council of Mozambique).
CEF	<i>Centro de Experimentacao Florestal</i> (Forestry Research Center) of the National Directorate of Forestry and Wildlife (DNFFB) located within the Ministry of Agriculture.
CEIKA	Center for Environmental Information and Knowledge in Africa.
CGIAR	Consultative Group on International Agricultural Research.
CITES	Convention on International Trade in Endangered Species.
CNA	National Environmental Commission.
DFID	Department of International Development.
EIA	Environmental Impact Assessment.
EIS	Environmental Impact Study.
FAO	Food and Agriculture Organization of the United Nations.
FRELIMO	<i>Frente de Libertação de Moçambique</i> (Mozambique Liberation Front).
GEF	Global Environment Facilities.
GNP	Gross National Product.
HIPC	Highly Indebted Country.
IFPR	International Food Policy Research Institute.
IGEL	Intersectoral Group on Environmental Education.
IISD	International Institute for Sustainable Development.
IMF	International Monetary Fund.
INIA	<i>Instituto Nacional de Investigacao Agricola</i> (National Institute for Agricultural Research), Maputo.
INS	National Health Institute.
MICOA	Ministry for Co-ordination of Environmental Action.
NEMP	National Environmental Management Programme.
NEPAD	New Partnership for Africa's Development.
NGO	Non-Governmental Organization

RENAMO	<i>Resistência Nacional Moçambicana</i> (National Resistance of Mozambique).
SD	Sustainable Development.
SLF	Sustainable Livelihood Framework
UEM	<i>Universidade Eduardo Mondlane</i> (Eduardo Mondlane University), Maputo.
UNAIDS	Joint United Nations Programme on HIV/AIDS.
UNDP	United Nations Development Programme.
UNEP	United Nations Environmental Programme.
UP	<i>Universidade Pedagógica</i> (Pedagogic University).
VAC	Vulnerability Assessment Committee.
WCED	World Conference on Environment and Development.
WHO	World Health Organization.
WRI	The World Resources Institute.
WWF	Worldwide Fund for Nature.

Chapter One

INTRODUCTION TO THE STUDY

1.0. Introduction

✓ The environment is the source of what every one of us needs to survive- air, water and food; it is also the source of the material we require to take our lives from pure survival to subsistence and beyond- shelter, clothing, tools and the infrastructure of collective human settlement. Absence or denial of these basic necessities constitutes absolute poverty.¹ Indeed, it is recognized that human poverty is both a cause and a consequence of environmental degradation.² Consequently, Korten believes the world at the end of the twentieth century is suffering from a threefold crisis: poverty, environmental destruction, and social disintegration.³ He defines development as “a process by which the members of a society increase their personal and institutional capacities to mobilize and manage resources to produce sustainable and justly distributed improvements in their quality of life consistent with their own aspiration.”⁴ This should be the key to each development initiative, and the church has a role to play in this struggle against poverty and environmental degradation.

Based on my observation of the environmental degradation in many parts of Africa, especially in Mozambique, one of the world’s poorest countries, this study will investigate the link between environmental degradation and livelihood strategies in Mozambique as a result of this poverty. I will be examining what the role of the church or the Christian community in Mozambique could be in this situation, and the study will investigate how the Sustainable Livelihood Framework could be used in this context.

¹ Damian Killeen and Atip Rahman, “Poverty and Environment,” 2002. From: www.ringalliance.org/ringpdf/wssd_03_poverty.pdf.

² A J Berry, *Care of Creation: Focusing concern and action*. (Leicester: Intervarsity Press, 2000), p. 19.

³ David C. Korten. *Getting to the 21st Century: Voluntary Action and the Global Agenda*. (West Hartford, Conn.: Kumarian Press, 1990), p. 114.

⁴ Korten, *Getting to the 21st Century*. p. 67.

1.1. Motivation for the research

I am motivated to undertake this study for the following reasons:

Firstly, I decided to research on environment and livelihoods because of my home experience in rural Rwanda where I was born and where I was thus challenged by observing the environmental degradation through people's livelihood strategies. I realized how the environment in general, and the earth in particular was going through a crisis caused by humans and their activities, and their interactions between themselves, their culture and the environment as a whole.

Secondly, when I was working with the United Nations during the years 1994 and 1995 in Rwanda, I experienced a serious crisis within the environment especially in Gikongoro, a province located in the South West of the country. Known as one of the three provinces that were under the '*Operation Turquoise*', a French operation which aimed to protect Rwandan war displaced people after the 1994 genocide, Gikongoro was a home of hundreds of thousands of displaced people where they survived through receiving humanitarian assistance from several international agencies. Nevertheless, the situation of these displaced people was a serious threat to the environment. Trees and grasses were cut in order for these people to build up their shelters, and for use as firewood. Within a few months, the whole region, which was all green before their arrival, became like a desert, and one could travel many miles before seeing green vegetation. In addition, people and their cattle polluted the water. This was a challenge to me, as I remember going around with the peacekeeping forces to talk to people about the dangers of abusing the environment, calling people to take care of it.

Thirdly, in our post graduate programme in Theology and Development, the study on environmental issues was one of the most interesting that I studied, and this increased my eagerness to know more and also to make a contribution to the debate through my research. This raised in me a need to investigate issues regarding the environment and the ways it is degraded through people's daily livelihoods, especially those who live in rural

areas throughout the African continent. Many books that I read on environmental issues discussed how people's livelihood strategies undermine the environment, raising the urgent need to promote sustainable livelihoods, which is also a key to promoting the environment.

Fourthly, though the environment is degraded throughout Africa as a result of people's daily living struggles, I have observed that this degradation is very serious in the country of Mozambique. Indeed, since 1996 I have been living and regularly visiting the country of Mozambique where I observed serious environmental degradation in different ways, from deforestation to water and air pollution as people struggle to survive in this poor country. Among many areas that I observed both an increase of environmental degradation and poverty, there is Matutuine District, one of seven districts that make up Maputo Province in the South of Mozambique. This is also an area on which much has been discussed and written about with regard to poverty as well as environmental degradation. This increased my zeal and my commitment to undertake a thorough investigation regarding this issue, especially trying to explore the role to be played by the church in this struggle.

1.2. Preliminary literature study

In my reading of books, journals, class notes from the University of KwaZulu-Natal and much relevant information from the Internet, I have been discovering a wide range of resources that are helpful in developing a thorough understanding of issues regarding the environment and sustainable livelihoods, which is at the heart of this research. Below are some of the particular resources that will enrich my study.

1.2.1. Resources on environment

There are so many resources on the issue regarding the environment, and the more I have read the more I discover how it is affected negatively in one way or another by people's livelihood strategies. These are some of the resources and books on environment that motivate and raise my interest:

CG Oosthuizen⁵ and FJ Haught⁶ maintain that there are many causes of environmental degradation. While Neil Middleton et al. argues that poverty, rapid population increases and national debt are the universally recognized reasons for the creation, in the developing world, of an increase in land degradation and unsustainable agriculture,⁷ Oosthuizen argues that the main cause of the environmental crisis lies in the understanding of nature and the image of human beings to be found in the Old Testament, especially in Genesis 1:26:28,⁸ a conviction that he shares with Haught who identifies anthropocentrism to be the root cause of degradation.⁹ Haught believes that, “by placing an exaggerated emphasis on ourselves, we rob non-human creatures of their own intrinsic worth.”¹⁰ He feels this divestiture leaves us with the impression that nature is something useful only for our own designs. “We perceive its values to be purely instrumental rather than intrinsic.”¹¹

David Korten reminds us that poverty and environmental degradation, as well as social violence, are interrelated.¹² He thus criticizes any development approach that focuses on economic growth while neglecting to focus on the well-being of people and the environment. For Korten, in development practice, “We need an alternative vision in which the well-being of people and the living systems of the planet that is their home come first.”¹³

M Mwombeki points out the extent to which human beings have shown a disregard for the environment. He therefore contends that there is a need for humans to take care of it.

⁵ C G Oosthuizen, *The death of the soul and the crisis in ecology*: Paper read on the 22nd January 1991 as the second ISWEN lecture, 1991.

⁶ F J Haught, *The Promise of Nature: Ecology and Cosmic Purpose*. (New York: Paulist Press, 1993), p. 43.

⁷ Neil Middleton et al, *The Tears of the Crocodile: From Rio to Reality in the Developing World*. (Colorado: Pluto Press, 1993), p. 108.

⁸ Oosthuizen, *The death of the soul and the crisis in ecology*.

⁹ See Zwodangani Mudau, “Biblical and Theological Aspect of Ecology”, in Steve de Gruchy (ed), *Bulletin for Contextual Theology in Africa*. (Pietermaritzburg: School of Theology, University of KwZulu-Natal) volume 8, No2 & 3, April & August 2002, p. 14.

¹⁰ Haught, *The Promise of Nature*. p. 43.

¹¹ Haught, *The Promise of Nature*. p. 43.

¹² See Background to the research on page 1.

¹³ Korten, *Getting to the 21st Century*. p. 67.

The essay furthermore discusses the interrelation and interdependency of life on the earth, and, as a result, the necessity as well as human responsibility in environmental stewardship.¹⁴

In the *Care of Creation: Focusing Concern and Action*, the author highlights the need for the care of creation since the earth is the Lord's and the fullness thereof (Ps 24:1). This book also discusses the theological concept of the way we have, in one way or another, degraded creation, through which, by God's grace, we are sustained. As followers of Jesus Christ, we believe that the Bible calls us to be concerned about the healing of God's creation, as we are called to be faithful stewards of God's good garden, our earthly home.¹⁵

In her essay concerning the "Mission of the Church and Concern for the Environment", Mary N Getui argues that the environment is a crucial factor for survival, but unfortunately it has been undergoing a serious degradation. She therefore contends that the church has a significant role to play in environmental issues, especially through educating its members to care for the environment.¹⁶

Prepared in partnership with the South African Council of Churches for the World Summit on Sustainable Development, Vol. 8.2 and 3 of the *Bulletin for Contextual Theology in Africa*¹⁷ provides a challenge to the churches to examine their own theology in respect of current issues concerning the environment and development.

¹⁴ M Mwombeki, "Ecology in the New Testament." In J N K Mugambi & M Vahakangas (eds). *Christian theology and environmental Responsibility*, 96-111. (Nairobi: Acton, 2001).

¹⁵ Berry, *Care of Creation*, pp. 18-21.

¹⁶ N. Mary Getui, "Mission of the Church and Concern for the Environment" in A Nasimiyu-Wasike and D W Waruta (eds). *Mission in African Christianity: Critical Essays in Missiology*. (Nairobi: Acton Publishers, 2000), pp. 40-58.

¹⁷ Andrew Warmback (ed), *Bulletin for Contextual Theology in Africa*, volume 8, No 2 & volume 8, No 3 April & August 2002.

In *The environmental Crisis: A Challenge for African Christians*, the author¹⁸ points out the serious environmental degradation that is taking place on our planet, especially on the African continent, and challenges the church to play a role towards correcting errors that have been repeatedly committed in the past of both forgetting and neglecting our role in the environmental care. He contends that the future of humanity depends largely on the effective management of the natural resources with which planet earth is endowed.

Gitau's declaration is in agreement with Byaruhanga Karungi's contention that "Human beings, more than any other species, attempt to modify the physical environment, in order to satisfy their immediate needs and wants. In doing so, they increasingly disrupt, or even destroy some of the biotic components that are essential for the environmental sustenance of life."¹⁹ Byaruhanga also discusses the issues concerning pollution and ecological destruction. He suggests different ways the church can play its role in environmental protection, especially in areas such as protection of people in community, alternative sources of fuel, prevention of pollution of soils and water, etc.

1.2.2. Resources on sustainable livelihood approach

There are several sources that deal with the sustainable livelihood approach and which motivated me to research this topic. These include:

Robert Chambers and Gordon Conway. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. The authors of this book discuss issues regarding rural livelihoods and how they can be sustained. They maintain that the Sustainable Livelihood Framework (SLF) considers "people, their capabilities and their means of living, including food, income and assets."²⁰

¹⁸ S K Gitau, *The environmental Crisis: A Challenge for African Christians*. (Nairobi: Acton Publishers, 2000).

¹⁹ T A Byaruhanga Karungi, "The Church's role in environment protection", in Joseph T. Agbasiere, and B K Zabajungu (eds), *Church Contribution to Integral Development*. (Eldoret, Kenya: AMECEA Gaba Publications, 1989), p. 228.

²⁰ Robert Chambers and Gordon Conway, *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. Institute of Development Studies Discussion Paper 296. (University of Sussex, Brighton: IDS Publications, 1992), p. 7.

UNDP, *Sustainable Livelihoods*.²¹ The writers maintain that development action has to understand people and their local contexts in order to help create an enabling environment in which they can use their abilities, fulfill their potential and flourish.²² They favor SLF as it puts people at the center of development by exploring what poor people already have and supports their talents, knowledge, and their skills.²³ Thus, the Sustainable Livelihood Framework is a useful and helpful development approach for the church in Africa to use, especially in the context of Mozambique where poverty is rampant, and where people's livelihood strategies usually undermine the environment.

In *A Theological Appreciation of the Sustainable Livelihoods Framework*, a paper first delivered at the inaugural meeting of the Society for Urban Mission, Pretoria, South Africa, July 2004, Steve de Gruchy, argues that: (1) Christian engagement in the world needs an adequate theory of development praxis, and the SLF provides us with this; (2) then it explores the SLF in some detail so that we gain some familiarity with it in order to (3) thirdly, examine some of the core concepts within the framework by way of a theological appreciation.

DFID, "*Sustainable livelihoods guidance sheets*" is a wonderful resource on SLF. It maintains that SLF builds on strengths in the household and in the community: SLF starts with an analysis of strengths rather than needs.²⁴ I recommend this approach to be effective, especially in the context of Mozambique, because of the way it recognizes people's capability and potential in order to help them to improve their situation. Indeed, SLF encourages people to do something in order to help themselves instead of depending on outsiders. In fact, "in livelihoods focused development efforts, a key objective will be to remove the constraints to the realization of potential."²⁵ In addition, the writers deal with the SLF approach and its capability of addressing the issue regarding the earth crisis.

²¹ UNDP, *Sustainable Livelihoods*. Downloaded on 15.01.2004 from www.undp.org/sl/index.htm

²² UNDP, *Sustainable Livelihoods*. Downloaded from www.undp.org/sl/index.htm p. 9.

²³ See UNDP, *Sustainable Livelihoods*. Downloaded from: www.undp.org/sl/index.htm.

²⁴ See DFID, *Sustainable livelihoods guidance sheets*. p. 10.

²⁵ See DFID, *Sustainable livelihoods guidance sheets*. p. 10.

They acknowledge that “understanding environmental issues and the role they play in causing and perpetuating poverty is central to the SL approach.”²⁶

1. 3. Research problem

This research is specifically concerned with Mozambique, one of the poorest countries in Africa and in the world. The major issue guiding this study is, firstly, to investigate the link between environmental degradation and livelihood strategies in Mozambique. The case study is focused on Matutuine district located in the south of Maputo province. This district is considered to be among the poorest, and one of the causes of this poverty is that its environment is being degraded in various ways. The study will, secondly, seek to find out the mindsets, beliefs and values that contribute to this link; and then, thirdly, to suggest the possible role the church could play in shaping livelihoods that are sustainable.

1.4. Theoretical framework

The theoretical framework of my study is based on some core concepts of the SLF as pointed out by Robert Chambers and Gordon Conway, UNDP, Steve de Gruchy, DFID, and from many others sources as we studied in our Theology and Development class at the University of KwaZulu-Natal, Pietermaritzburg.

1.4.1. Theological framework

The theological framework that guides this research is centered on the stewardship of creation. Indeed, environmental stewardship is God’s command to human beings, a commission that was received right from the beginning of creation itself. Thus, the theological concept of creation is a biblical issue, which also needs to be taken seriously, and any ecological crisis is basically a violation of this commandment.²⁷

²⁶ DFID, Sustainable livelihoods guidance sheets. p. 57.

²⁷ Andreas Nehring. *Ecology, a Theological response*. (Madras- India: The Gurukul Summer Institute- 1993, 1994), p.30.

This urgent need of stewardship of creation has usually been misunderstood in our Christian context. Lynn White maintains that Christianity is to blame for the emerging ecological crisis on account of its using the concept of the 'image of God', found in the Genesis creation account (Gen.1: 26-27), as a pretext for justifying human exploitation of the world's resources. Genesis, according to White, therefore, legitimated the notion of human domination over the creation, hence leading to its exploitation.²⁸ Thus, despite its historical and theological superficiality, White's paper, as Berry comments, had a profound impact on the shaping of popular scientific attitudes towards Christianity in particular, and religion in general.²⁹

However, concerning the stewardship of creation, there is a confirmation that a closer reading of the Genesis text shows that such themes as 'humanity as the steward of creation' and 'humanity as the partner of God' are what is indicated by the text, rather than that of 'humanity as the lord of creation.'³⁰ Indeed, this study contends that, far from being the enemy of ecology, the theological doctrine of creation affirms the importance of human responsibility towards the environment. Therefore, the biblical concept of "dominion" was to be understood specifically in terms of stewardship,³¹ for creation is not the possession of humanity; it is something which is to be seen as entrusted to humanity, who are responsible for its safekeeping and tending.³²

1.5. Research design and methodology

1.5.1. Research design

My research process did not only depend on the sources from library, but in order to enrich my study, I also went to Mozambique from time to time, in order to collect data needed for this research.

²⁸ L White, "The historical roots of our ecologic crisis", *Science* 155:1203-1207 (1967), pp. 31-42

²⁹ Berry, *Care of Creation*. p. 87.

³⁰ Cf. H D. Preuss, *Old Testament Theology*. (Louisville, KY: John Knox Press, 1995), pp. 114-117.

³¹ D J Hall, *Imaging God: Dominion as Stewardship*. (Grand Rapids: MI: Eerdmans, 1986).

1.5.2. Data collection

During my research I greatly needed secondary sources for information. Indeed I have dedicated my time to intensive reading from the University of KwaZulu-Natal library, including visits to other libraries here in Pietermaritzburg. I have also visited different organizations, governmental institutions, and NGOs that work on the environment in Mozambique in order to get information from them.

In addition, there was a need to collect focused information from specific individuals, groups of people or even institutions. This process of data collection is very important in my work because it will help me be clear in my study and also enrich my dissertation. I decided to interview 40 key informants: 20 in the district of Matutuine (in the south of Maputo province) where my research was based, and another 20 people from different parts of the country (at least 2 people from each of the 10 provinces of Mozambique). I also contacted different organizations, NGOs and institutions that deal with environmental issues in order to collect the needed data from them. In addition I visited the libraries of two major universities in Maputo (Universidade Eduardo Mondlane and Universidade Pedagogica).

This data collection was gathered through the form of semi-structured interviews. Throughout these interviews, I referred to some questionnaires that I have designed beforehand.

I also obtained information through observation. I decided to research in the area of Matutuini because this is a district that I have visited and which has attracted me intellectually with regard to poverty as well as the environmental crisis as a result of people's livelihood strategies. During my visit, I observed what is going on as far as people's livelihood strategies and environmental degradation is concerned. This has enriched my study because I was able to analyze information I got, as well as what I was not told, during my research.

³² J. Nash, *Loving Nature: Ecological Integrity and Christian Responsibility*. (Nashville, TN: Abingdon,

I furthermore used the data analysis process in order to access and understand information received through interviews with different individuals and groups. This was also done sometimes with regard to the data collected from books, journals, Internet, etc.

1.6. Limitations of the research

This research was not only limited by time and financial constraints, but there were also different issues that affected its progress:

Firstly, this research was based on the study focusing specifically on the link between environmental degradation and livelihood strategies in the context of Mozambique. Secondly, the research limited itself to considering the role of the church within this situation as well as the use of the Sustainable Livelihood Framework as a development approach to be used in this context. Thirdly, I was cautious that some of the individuals, groups or institutions in Mozambique might not be willing to provide the data that I needed for different reasons. And finally, the research was limited to some chosen areas of the district of Matutuine since I could not cover all the corners of this district.

1.7. Outline of chapters

This dissertation is structured into seven chapters. It will seek to cover the following issues in each chapter.

Chapter one will be an introductory overview of this study. It will give the background information to my study, highlighting its objectives, motivation, research hypothesis, research problem, research methodology, relevance of this study, its limitations as well as the outline of the chapters.

Chapter two will deal with the literature review. The chapter will provide a theoretical survey on the environmental crisis as a development issue for Africa. It will discuss in detail evidence on how the environment is degraded throughout the African continent.

1992).

Since it will not be possible to cover every country in Africa, the study will focus on different accounts where the environment is in crisis in some countries of Africa.

Chapter three will deal with the fieldwork in which we examine the environment and livelihoods in Matutuine District, Maputo Province, south of Mozambique. This is a case study that seeks to investigate the link between environmental degradation and livelihood strategies for the people in this country, which is one of the poorest nations in Africa and in the world, and where this poverty also has a link with the environmental/ecological crisis. These fieldwork findings will be analyzed in the light of the truth that human poverty is both a cause and a consequence of environmental degradation.³³

Chapter four will deal with an analysis of the environment and livelihoods in Mozambique. This chapter will introduce the SLF. Then we will explore livelihood issues in the context of Mozambique based on the five key elements of the SLF.³⁴ We will also discuss the environmental crisis as a result of people's livelihood strategies in Mozambique. In addition, we will seek to investigate why people do not see the link between poverty and the environment.

In Chapter five we will provide theological resources for caring for the environment, with a focus on the concept of the stewardship of creation.³⁵ The chapter will, in addition, suggest resources that can help the Mozambican Christian community to understand the link between environmental degradation and livelihood strategies in Mozambique. Conscious of the beliefs, mindsets and values lying behind this link, I intend to survey different biblical passages and theological issues with regard to ecology and the necessity of caring for God's earth. I will also interact with some resources in African tradition and culture linked to environmental issues, seeking to promote an indigenous wisdom that can contribute to environmental care.

³³ See Berry, *Care for Creation*. p. 19.

³⁴ See section 3.2.

³⁵ See 5.1. Theological Framework.

Chapter six will discuss the response of the church to environmental degradation and sustainable livelihoods. This will provide, in a practical way, different strategies on how religious institutions in Mozambique could respond to the environmental crisis, and hence respond to poverty eradication throughout the country.

Chapter Seven will be the concluding chapter of my dissertation in which I summarize the findings.

Chapter Two

THE ENVIRONMENTAL CRISIS AS A DEVELOPMENT ISSUE FOR AFRICA

2.0 Introduction

The word 'environment' refers to the complete range of physical and biological conditions that surround us. When you look around, everything you see makes up your immediate environment.³⁶ Human beings, and every other organism, i.e. trees, plants, animals, etc., cannot exist outside a given environment."³⁷ According to Andreas Nehring, "Land, water, energy, air, and space may mean environment, but more than these, it is the human attitude towards them that really constitutes the environment."³⁸ Indeed, 'environment' is the term used to refer to nature and all that surrounds it, and, in this study, the term 'ecology'³⁹ is also used synonymously with environment.⁴⁰

When the environment loses value or becomes damaged, environmental degradation is said to occur.⁴¹ It is indeed becoming increasingly clear that what has been named 'the ecological crisis' is perhaps the number one problem facing the worldwide community of our times. There are many forms of environmental degradation. When habitats are destroyed, biodiversity is lost, or when natural resources are depleted, the environment is hurt.⁴² The environmental crisis is a global problem, which concerns all human beings regardless of where they live, or their social class. It is a problem that does not simply have to do with the well-being of humanity but perhaps with creation as a whole. It is

³⁶ Peter Bond, *People and the Environment*. (Oxford: Basil Blackwell Ltd, 1989), p. 5.

³⁷ Ken Gnanakan, *God's World: A Theology of Environment*. (Cambridge: The University Press, 1999), p. 2.

³⁸ Nehring, *Ecology, a Theological response*. p. 30.

³⁹ The term 'ecology' was coined last century by the German biologist Ernst Haeckel, to describe the study of the relationship between living organisms and their environment.

For more information see Lawrence Osborn, *Guardians of Creation*. (Leicester: Apollos, 1993), p. 12

⁴⁰ Gnanakan, *God's World*. p. 2.

⁴¹ "Environmental Degradation". Available at:

www.library.thinkquest.org/26026/science/environmental_degradation Accessed on Monday, October 11, 2004.

⁴² See "Environmental Degradation". (Website).

difficult to find any aspect of what we call 'evil' or 'sin' that is so all embracing and has such devastating power as ecological evil.⁴³

Africa is known for its riches as well as its struggles and poverty. In fact, "The array of ecosystems and organisms contained within its forests, rivers, deserts, wetlands, mountains, and savannas, are unequalled in the world. However, those ecosystems and the organisms they host are under siege."⁴⁴ The environmental degradation is, in fact, Africa's main obstacle on its path to sustainability. Indeed, more than any other continent in the world, Africa relies on its environmental resource base for survival. Thus, according to the World Bank, "African countries consistently identify land degradation, deforestation, lack of access to safe water, and loss of biodiversity compounded by climatic variability, as their major environmental concerns."⁴⁵

This chapter provides a theoretical survey on the environmental crisis as a development issue for Africa. The chapter discusses, in detail, evidence on how the environment is degraded throughout the African continent. The study focuses on different accounts where the environment is in crisis in some countries of Africa.

2.1. Our environment is our life

Our livelihoods depend on how well we manage our environment: if people care for the environment, they can live longer and progress, otherwise its abuse troubles their existence.⁴⁶ It is therefore necessary to care for the environment as all living creatures depend on it for their livelihoods. Indeed, good care of the environment makes people live longer and progress otherwise people suffer from its abuse.⁴⁷ Thus, each community must "be in a healthy and respectful relationship with the environment on which they

⁴³ Elizabeth Breuilly and Martin Palmer (eds), *Christianity and Ecology*. (London: Cassell Publishers Limited, 1992), p. 47.

⁴⁴ Gordy Slack, "Africa's environment in Crisis". www.diglibl.amnh.org/articles/Africa?Africa_environment.html . Accessed on Monday, October 11, 2004

⁴⁵ World Bank, *Toward Environmentally Sustainable development in Sub-Saharan Africa*. (Washington: World Bank, 1996), p. 2.

⁴⁶ Getui. "Mission of the church". p. 43.

⁴⁷ Getui, "Mission of the church". p 43.

depend for food, water and air.”⁴⁸ With this regard, caring for the environment is not a negotiable issue, but a matter of fact for our survival, for we cannot survive when the environment we depend on is destroyed.

2.2. Our environment is facing many challenges

As a result of many issues and challenges, such as heavy reliance on natural capital, extreme poverty along with very fast population growth, urbanization and migration, etc., the African environment faces very many kinds of degradation and this is a serious developmental issue that threatens lives on our continent.

The following are some of the key environmental issues and challenges among many others, as highlighted by the World Bank, that Africa is facing in its relying on its environmental resource base, from both an economic and social perspective.

2.2.1 Heavy reliance on natural capital

Most economies in Africa depend heavily on their natural capital. Indeed, about two-thirds of the population live in rural areas and derive their main income from agriculture. African countries consistently identify land degradation, deforestation, lack of access to safe water, and loss of biodiversity compounded by climate variability as their major environmental concerns.

2.2.2 Extreme poverty along with very fast population growth

It has been observed that poverty is both a cause and a result of environmental degradation. Of the thirty poorest countries of the world, twenty-one are in Africa. The entire region had an average income level of about \$520 per capita in 1993.⁴⁹ The

⁴⁸ Bryant Myers. *Walking with the poor*. (New York: Orbis book, 2002), p. 120.

⁴⁹ World Bank, *World Development Report 1995: Workers in Integrating World*. (New York: Oxford University Press, 1995).

extreme poverty is exacerbated by a demographic explosion, with a current annual average growth rate of about 3 percent.

Rapid population growth (which results in environmental degradation) is also a reality in Mozambique. According to the General Census in 1997, the total population increased from 12.1 million in 1980 to 15.7 million in 1997. Other projections (from the World Bank) estimate that the same population has increased from 14.2 million in 1990 to 18.1 million in 1996, and would reach 19.0 million in 1998, and 20.1 million in 2000. The population has a high natural growth rate of 2.5% to 2.8% per year according to sources.⁵⁰ In this regard, it has been reported that “the rapid population growth has resulted in rapid environmental degradation, which includes high rates of deforestation, desertification, and degradation of soil. This has impacted on the productivity of agriculture and the socio-economic levels of the communities.”⁵¹

2.2.3 Urbanization and migration

Sub-Saharan Africa is the fastest growing urbanized region in the world: Thirty years ago only one city had more than a million inhabitants; by 1990, eighteen cities had attained that size. Although cities provide many economic opportunities, they also confront a range of environmental problems: the inadequacy of physical infrastructure and services, the health consequences of crowding and increased exposure to concentrated wastes, unsustainable consumption of resources, and increasing settlement on ecologically sensitive areas. In addition, much of the continent’s urban population already live in coastal cities, and African coasts are attracting increasing numbers of people. In Mozambique for instance, “there is a high concentration of inhabitants along the coastal strips, as well as in the main river valleys which are the most suitable areas for farming. Specifically, 40% of the population is concentrated in Nampula and Zambezia Provinces,

⁵⁰ Center for Environmental Information and Knowledge in Africa (CEIKA), “Best Practices of Environmental Information System in Mozambique”. From: www.easd.org.za/Eis/repts/Mozambique/mzeis2.html Accessed on October 9, 2004.

⁵¹ See Gyamfi-Aidoo, “Causes of environmental problems”, 1998. From www.easd.org.za/Eis/repts/Mozambique/mozeis2.htm Accessed on Monday, October 11, 2004.

which constitute a fourth of the territory. Twenty-five percent of the population live in urban areas.⁵² As a result, coastal zones are often affected by a wide range of interdependent environmental issues relating to agriculture, forestry, and fisheries and water management at the interface between marine and freshwater ecosystems, as well as infrastructure, urban, and industrial development.

Furthermore, Africa has millions of refugees and migrants and this number increases year by year. Indeed, Sub-Saharan Africa alone contains about 35 million transnational migrants, including more than 4 million refugees. These population movements, which are likely to grow, contribute to environmental degradation, as was the case in the South West of Rwanda during the years 1994 and 1995.

2.2.4. Global environmental impact

As our environment is facing many challenges as we noted above, we need to take into consideration that poor people in Africa cannot always be blamed for environmental degradation resulting from their daily battle for survival. In fact, Africa's environment is also a victim of global misconduct such as the industrialization from affluent countries, which leads to global warming and the dumping of toxic wastes, which lead to global pollution. Jesse N K Mugambi talks about "emissions trading", a discriminatory assumption that some people are entitled to suffer less pollution than others from what is being done by the 'affluent' nations - which constitute less than 20 % of the world population.⁵³ This is seen through the relocating of pollutant industries into the third world, and the main reason for this relocation is not to help industrialization to the host, but, rather, to maximize profits and escape the stringent standards in their countries of origin.⁵⁴ This results in global warming, and there is "a growing risk that the climate will

For more information concerning the impact of environmental degradation on food security, see Section 2.5.1.

⁵² Center for Environmental Information and Knowledge in Africa (CEIKA), "Best Practices of Environmental Information System in Mozambique". (Website).

⁵³ Jesse N K. Mugambi. "Emissions Trading as an Aspect of Toxic Waste Dumping" in Andrew Warmback (ed) *Bulletin For Contextual Theology in Africa*. Vol. 8, Number 2&3. April & August 2002. Pietermaritzburg: School of Theology University of Natal, p. 80.

⁵⁴ Mugambi. "Emissions Trading". p. 80.

change in ways that will seriously disrupt our lives. While, on average, the globe will get warmer and receive more precipitation, individual regions will experience different climatic changes and environmental impacts.”⁵⁵ Mugambi also talked about the fact that Africa has become a huge dumping ground of used machinery, weaponry and personnel from the affluent nations.⁵⁶ So, all of these confirm that the global environmental impact is also huge, which also results in a serious environmental crisis, and that Africa has been a victim. This therefore proves the fact that “poverty constitutes at least as serious a threat to the environment as industrial progress.”⁵⁷ Indeed, as poverty in Africa contributes to the environmental degradation, so does the global environmental impact.

2.3. Evidence of environmental crises in Africa

Though Africa is a rich continent, it has more countries with environmental degradation problems than any other continent. Sources from the World Bank show that most economies in Africa depend heavily on their natural capital (natural resources). “About two-thirds of the population lives in rural areas and derives their main income from agriculture. In a few countries such as Burkina Faso, Ethiopia, Malawi, and Uganda, the rural population makes up more than 80 percent of the total. Agriculture is the fundamental economic activity in most African countries, accounting on average for about 20 to 30 percent of the officially registered gross domestic product (GDP) in Sub-Saharan Africa and has a major share in the value of total export.”⁵⁸

In his message to the AMCEN special session on the NEPAD Environment Action Plan held in Maputo Mozambique, in June 10, 2003, Mohamed T. El-Ashry maintains that at the beginning of the new millennium Africa is characterized by two interrelated features: rising poverty levels and deepening environmental degradation.⁵⁹ One of the problems

⁵⁵ See “Global Environment” from http://www.ucsusa.org/global_environment/global_warming/index.cfm Accessed on 21 January 2005.

⁵⁶ Mugambi, “Emissions Trading”, p. 85.

⁵⁷ See Instituto Del Tercer Mundo (ITEM), *The World Guide 1999/2000*. (Oxford: New International Publications, 1999), p.35.

⁵⁸ World Bank, *Toward Environmentally Sustainable development in Sub-Saharan Africa*. p. 11.

⁵⁹ Message from Mohamed T. El-Ashry to the AMCEN special session on NEPAD Environment ACTION Plan. Maputo, Mozambique, June 2003. From: www.gefweb.org

facing contemporary Africa is ecological disaster. Indeed, years of ecological mismanagement such as overgrazing, deforestation, uncontrolled and indiscriminate poaching, and similar errors of sufficient magnitude, have placed the entire African continent on the brink of total ecological disaster. The once fertile land is rapidly giving way to desertification. Africa cannot feed herself anymore.⁶⁰ El-Ashry's issues of discussion regarding environmental crisis in Africa includes "the widespread land degradation and desertification; loss of biodiversity; deforestation and loss of arable and grazing land; decline in soil productivity; pollution and depletion of fresh water resources; and deterioration of air quality."⁶¹

This degradation of the environment is usually the result of human influence. According to Bond, modern technology and machines have meant a rapid expansion of human influence on the environment. Today, there are few parts of the world where there is a truly natural environment, untouched by humans. Trees and grass have often been turned into fertile farmland. A large river may be deepened or straightened for ships and barges-but it can equally well be turned into a smelly, lifeless sewer full of chemicals and waste.⁶²

The following are different accounts that demonstrate how the environment on the African continent is in crisis:

2.3.1. Land degradation

Land degradation is defined as reducing available land for creatures and crops and destroying land by erosion, salinization, and desertification.⁶³ In many cases, the degradation of land is caused by human beings. Usually farmers exploit the land

⁶⁰ Emmanuel Asante, "Ecology: Untapped Resource of Pan-Vitalism in Africa" in *African Ecclesial Review* 27 (1985), p. 289.

⁶¹ Message from Mohamed T. El-Ashry to the AMCEN special session on NEPAD Environment ACTION Plan.

⁶² Bond, *People and the Environment*. p. 5.

⁶³ Calvin B De Witt, *Caring for Creation: Responsible Stewardship of God's Handiwork*. (Grand Rapids: Bake Book House, 1998), p. 17.

constantly without allowing it to rest, and as a result, our land has lost its topsoil as well as its fertility.

On the African continent, the majority of people depend on the land for their livelihoods. Agriculturists in their activities usually over-utilize the land and they do not allow it to rest. As a result, the land becomes infertile and this causes them to use some toxic and other chemicals to improve its fertility. For this reason, the land loses its topsoil and it becomes polluted.

In addition, as a result of human greed and selfishness, farmers cut trees and grass to extend their lands for their profit and this causes erosion. As Zwodangani Mudau argues, “Today’s farming is governed by a craving to maximize profits, a farmer with such desire will use artificial fertilizers and insecticides and nature pays the price.”⁶⁴ Thus, as Klaus Nürnberger admits, our fertile soil is degraded by many kinds of chemicals such as fertilizers as well as insecticides. He contends that the emission of chemicals from industrial chimneys and exhaust pipes settle on the earth.⁶⁵ This misuse of land affects not only peoples but also other creatures. However, according to DeWitt, “These losses may not be noticed since they are masked by introducing new higher-yielding crop varieties that maintain or increase productivity by providing greater fertilizer and herbicide inputs. This in turn generally results in neglect and denial of declining land fertility and soil quality.”⁶⁶

Furthermore, land degradation is also caused by many other factors including wind, water, drought and desertification of soil as a result of deforestation.⁶⁷ Therefore, if land degradation continues there will be no sustainability for our future or for future generations.

⁶⁴ Zwodangani Mudau “Biblical and Theological Aspects of Ecology” in Steve de Gruchy (eds) *Bulletin for Contextual Theology in Africa*. Volume 8, No 2 and Volume 8, no 3 April and August 2002, p. 14-15.

⁶⁵ Klaus Nürnberger, *Prosperity, Poverty & Pollution*. (Pietermaritzburg: Cluster Publication, 1999), p. 78.

⁶⁶ DeWitt, *Caring for Creation*. pp. 353-4.

⁶⁷ See Art Meyer et al, *Earth-Keepers: Environmental Perspectives on Hunger, Poverty and injustice*. (Ontario: Herald Press, 1991), p. 77.

Ethiopia is one of the African countries where land degradation is the major environmental problem. In this country, land degradation is manifested in many ways, such as “soil removal by sheet and gully erosion, and nutrient depletion by biomass burning, including dung and crop residues, resulting in a break of the nutrient cycle. Dung and crop residues are burned because of a lack of wood for fuel.”⁶⁸ Linked to this situation, research has shown that the latest land degradation estimates indicate that out of the 52 million hectares of land making up the highland of Ethiopia, 14 million are severely degraded, 13 million hectares are moderately degraded and 2 million hectares have practically lost the minimum soil cover needed to produce crops.⁶⁹

Considering the country of Mozambique, land degradation, as a consequence of agriculture, occurs mainly in rural areas.⁷⁰ According to Menete and Mazuze, the major forms of land degradation in the country are: loss of soil fertility, soil erosion, soil salinization, soil acidification, loss of vegetation cover, and soil and water pollution due to pesticides and fertilizers.⁷¹

As is a reality in many other African nations, environmental degradation has been linked with people’s livelihood strategies in Ethiopia, especially in poor communities. (The situation is the same in Mozambique). Indeed, it has been noticed that “Ethiopia’s largely poor rural population, driven by poverty, attempt to satisfy their survival needs by clearing more forest land for agricultural purposes.”⁷²

In this regard therefore, there is a need to balance productivity and the ecological system. Indeed, if our land is not sustained and protected against erosion or any other hazards that degrade it, our survival will be at risk. It is true that “Civilization can survive the

⁶⁸ Mohamed Salih and Shibu Tedla (eds), *Environmental Planning*, p. 20.

⁶⁹ H Humi. “Ecological Issues in the Creation of Famines in Ethiopia”. Paper presented at the National Conference on Disaster Prevention and Preparedness Strategy for Ethiopia. Addis Ababa (Dec. 5-6, 1988).

⁷⁰ M Z L Menete and F.M Mazuze, “Situação Ambiental em Moçambique: Solos e Uso da Terra”. Ministério Para a Coordenação da Acção Ambiental. Maputo, Mozambique, 1997.

⁷¹ Menete and Mazuze, *Situação Ambiental em Moçambique*.

⁷² Salih and Tedla (eds), *Environmental Planning, Policies and Politics in Eastern and Southern Africa*. p. 21.

exhaustion of oil reserves, but not the continuing wholesale loss of topsoil.”⁷³ We are thus in danger if we continue to lose the top soil as a result of our ignorance, since our livelihoods depend immensely on our environment, especially on what is produced by the land.

2.3.2. Pollution

Pollution is defined as a “contamination of substances so that they are unfit for an intended use.”⁷⁴ In South Africa, the environmental problem has been exacerbated by apartheid. The homelands have become ecological deserts as a result of overpopulation. The failure to provide basic water and energy supplies to urban and rural blacks has led to increasing pollution and deforestation.⁷⁵

“Air and water are essential resources for all living species. The pollution of these resources comes from industry and agriculture, from human garbage, or from overabundant and untreated animal and human waste. As population pressures increase so do pollutants expelled into the air and waters.”⁷⁶ We see pollution in water, the air and upon the land.

2.3.2.1. Water pollution

Water is basic to every living creature on earth, and the quality of water determines the quality of life. According to J Carmody, the most important part of the ecosphere that land and its human inhabitants touch is water.⁷⁷ It is the use of water by human beings, which results in a number of water pollution problems. Water can be polluted by waste materials from human beings, animals as well as from industries. The principle sources of water pollution are sewage, industrial waste, garbage, and agricultural fertilizers. It is also

⁷³ See A Meyer and J Meyer, *Earth- Keepers*. p. 73.

⁷⁴ M Jones(ed), *The World Book Encyclopedia*. (United States of America: Field Enterprises Educational Corporation, 1961), p. 570.

⁷⁵ J de Gruchy & D Field, “Ecology” in J de Gruchy & C Villa Vicencio, C (eds), *Doing ethics in context: South African Perspectives*. (New York: Orbis Books, 1994), p. 203.

⁷⁶ Wright and Kill, *Ecological Healing*. p. 22.

believed that agriculture, too, is a major contributor to water pollution through the run-off from pesticides, herbicides and fertilizers.⁷⁸ There are many consequences that result from water pollution: it causes disease transmission through infection; it may poison humans and animals, etc.⁷⁹ Indeed, as Nehring contends, today water gets polluted in all its phases. Thus, the growing mosquito menace is an ecological indicator. Fumes of sulphur dioxide and acids of nitrogen get incorporated into clouds and come down as acid rain. As a result, as Nehring strongly believes, in the future, we may expect more wars for water to occur than even for petrol! Heavy metals and pesticides contaminating water get incorporated into the fish and other aquatic foods so that humans become the ultimate victims.⁸⁰

The scarcity of water is another problem. Nürnberger argues that

Irrigation farming, the industrial use of water, rising domestic consumption levels and urban population growth all combine to make the fresh water a dwindling resource. Ground water is being depleted through boreholes. Ocean and fresh water reserves are polluted by oil tankers, industries and waste. If the ice in the Polar Regions begins to melt, large fertile areas along the coasts will be swamped.⁸¹

Indeed, as De Witt maintains, water degradation is defiling groundwater, lakes, rivers, and oceans. Beneath people and ecosystems around the world lie great supplies of groundwater, often of high quality. This water is now being degraded by pesticides, herbicides, fertilizers, and leakages from dumps, landfills, and toxic waste sites.⁸²

⁷⁷ J Carmody, *Ecology and religion*. (New York: Paulist Press, 1983), p. 13.

⁷⁸ See Mudau, "Biblical and Theological Aspects of Ecology" in Steve de Gruchy (ed) *Bulletin For Contextual Theology in Africa*, p. 17.

⁷⁹ Goudie, *The Human Impact On The Environment*. p. 235.

The causes and forms of water pollution, as given by Goudie on page 235, created by humans are many and can be classified into groups as follows:

1. sewage and other oxygen-demanding wastes;
2. infectious agents;
3. organic chemicals;
4. other chemical and mineral substances;
5. sediments (turbidity);
6. radioactive substances;
7. heat (thermal pollution).

⁸⁰ Nehring, *Ecology, a Theological response*. p. 31.

⁸¹ Nürnberger, *Prosperity, Poverty and Pollution*. P. 78.

⁸² De Witt, *Caring for Creation*. p. 19.

Thus, pollution is “a contamination of substances which can no longer be used.”⁸³ It has been observed that in many parts of Africa, people do not use toilets; rather they use rivers and dam streams to relieve themselves⁸⁴, and as a result, the water is no longer clean for human use. This also affects fish, as well as many other animals that live in this polluted water. In addition, water is polluted by the waste materials from animals and industries. Furthermore the chemicals used in agriculture contaminate water especially during the rainy season when the rain takes them into the rivers and lakes.

2.3.2.2. Air pollution

Air pollution is simply defined as the release of undesirable concentrations of substances into the atmosphere as a result of human activity.⁸⁵ This is another sign of ecological deterioration. Steven Yearley observes that air pollution affects every one. He argues that “given that we all have to breathe the air and that it cannot be filtered before use, air pollution is probably the most pervasive environmental problem.”⁸⁶ According to W S Vorster, the most listed substance, of which humankind is the largest contributor, is carbon monoxide, and this oxidizes rapidly to carbon dioxide in the free atmosphere.⁸⁷ As Andrew Goudie maintains:

The primary pollutants, such as sulphur dioxide, most oxides of nitrogen, and carbon monoxide, are those directly emitted into the air from, for example, industrial sources. Secondary air pollutants, like ozone and products of photochemical reactions, are formed as a consequence of subsequent chemical processes in the atmosphere, involving the primary pollutants and other agents such as sunlight.⁸⁸

⁸³ M Jones (ed). *The World Encyclopedia*. (USA: Field Enterprises Educational Corporation., 1961), p. 570.

⁸⁴ I observed this during my visit to the beach of Beira in Mozambique.

⁸⁵ W S Vorster, *Are we killing God's earth?* (Pretoria: University of South Africa, 1987), p. 89.

⁸⁶ Steven Yearley, *Sociology, Environmentalism, Globalization: Reinventing the Globe*. (London: SAGE Publication, 1996), p. 34.

⁸⁷ Vorster (ed), *Are we killing God's earth?* p. 89.

⁸⁸ Andrew Goudie, *The Human Impact On The Environment*. (Cambridge: The MIT Press edition, 2000), p. 91.

Consequently, some of the air pollutants humans have released into the atmosphere have had detrimental impacts on plants; the example is sulphur dioxide, which is toxic to them.⁸⁹

There is a great danger to health as a result of air pollution as it increases respiratory illness such as: Tuberculosis, pneumonia, bronchitis, asthma, etc. People who stay in townships near industrialized areas are the most affected. People who stay in rural areas sometimes do not escape from the danger of air pollution; they may also be affected indirectly.⁹⁰

2.3.2.3. Litter

Littering is another serious problem in many African cities. Indeed, the environment is destroyed by the waste that is dumped anywhere. People throw away rubbish everywhere in this creation of God which we are mandated to take care of. Moltmann warns us by saying that in our throw-away society people think that what they throw away has gone away. But something does not become nothing; nothing we throw away has been gotten rid of. It remains somewhere in nature.⁹¹ This situation of littering is one of the serious environmental degradations that happens in Mozambique. In the City of Maputo, in the Bairro of Hulene especially, there was a small hill of rubbish that I visited a few months ago. This attracted many flies, and this was dangerous to the health of people who live close to this place.

2. 3.3. Deforestation

The environmental crisis is also seen through deforestation. Grainger defines deforestation as “the temporary or permanent clearance of forest for agriculture or other

⁸⁹ Goudie, *The Human Impact On The Environment*. p. 91.

⁹⁰ African Development Education Network, *Caring for Africa: Training Manual on Environment*. (Nairobi: ADEN, 1995), pp. 50-51.

⁹¹ J Moltmann, *Creating a Just Future*. (Philadelphia: Trinity Press International, 1989), p. 52.

purposes.”⁹² Forest clearance has been increasing over the past few years. Ghillean T. Prance, a tropical- rainforest specialist, maintains that “about 1% of the remaining forest disappears each year. That is some 22 hectares a minute. Tropical rainforests cover only 7% of the land surface of the planet, yet harbours about 60% of the species.”⁹³ Ernst Conradie and David Field also confirm that:

Deforestation forms perhaps the most critical example of ecological devastation in most African countries. This leads to soil erosion, floods, desertification, an increase in the level of CO₂ in the atmosphere and in this way to climate change. Although the rain forests occupy 7% of the world land surface, they contain 50% of the world’s species and are therefore reservoirs of genetic resources.⁹⁴

Slack maintains that “there has probably been more African forest destruction in the past 60 years than in the preceding 10,000.”⁹⁵ Indeed, the deliberate removal of forests, whether by fire or cutting, is one of the most long-standing and significant ways in which humans have modified the environment. In addition, drought and civil wars also contribute significantly to forest degradation as they displace people away from their traditional lands and who then establish their livelihoods through cutting down forests for firewood as well as for building their shelters. Furthermore, the increase in urbanization and industrialization has also raised the demand for wood products, especially firewood and charcoal. It has also been realized that consumption of forest products nearly doubled in Africa during the period from 1970 to 1994. “Africa lost 39 million hectares of tropical forest during the 1980s and another 10 million hectares by 1995.

According to Art Meyer and Jocene Meyer, these are two major reasons for the destruction of rainforests: First, poor people are forced to use the forest for firewood and also to expand their available land for farming purposes as a means for their daily subsistence. In fact, in many parts of Africa, the demand for electricity is not only high, but also it does not reach everywhere. Many people, therefore, use charcoal or firewood

⁹² A Grainger, *Controlling tropical deforestation*. (London: Earthscan, 1992).

⁹³ Ghillean T. Prance, “The Earth under threat” in R. J. Berry (ed.), *The Care of Creation: Focusing concern and action*. (Leicester: Inter-Varsity Press, 2000), p. 115.

⁹⁴ Ernst Conradie and David Field, *A Rainbow Over the Land: A South Africa Guide on the church and the Environmental Justice*. (Sybrand Park: Western Cap Provincial Council of Churches, 2000), p. 32.

for cooking and this involves cutting down trees. In Uganda, for example, due to the high demand for charcoal and firewood, particularly in Kampala city, many trees in various parts of neighboring areas have been cut down to meet that firewood or charcoal fuel demand. Consequently, patches of deserts have begun to form, mainly between Katugo and River Kafu on the Kampala-Gulu road. Mabila Forest reserve, which used to be extensive, has been reduced to thin strips along the side of the road.⁹⁶

Second, the middle class people as well as the developed countries need timber and pasture for their cattle for commercial purposes, and this has resulted in the destruction of forests.⁹⁷

It is pointed out that “flash floods following deforestation invariably result in a chain-reaction of erosion of the precious top-soil at the rate of about 6,000 million tons, equivalent to 375 acres per year.”⁹⁸ In Africa people cut trees for firewood and charcoal and they do not replace them. Because of population growth, forests are chopped down⁹⁹ to extend the space for habitat as well as for human consumption. “Forests are not many as they used to be, many trees are being cut down...as a result there is a lack of rain to water plantation and fields.”¹⁰⁰ This shows that the environment in Africa is in crisis and many lives are suffering from it. For this reason, Biblical teaching on the environment should be considered as this crisis is becoming worse in the African continent.

2.3.4. Desertification

As Africa’s forests shrink, its deserts grow. According to the report by the international Institute for Environment and Development, desertification threatens more than one-third

⁹⁵ G Slack, “Africa’s environment in Crisis”.

www.diglibl.amnh.org/articles/Africa?Africa_environment.html

⁹⁶ T.A. Byaruhanga Karungi. “The Church’s role in environment protection” in Agbasiere, Joseph T. and Zabajungu B.K. (eds) *Church Contribution to Integral Development*. (Eldoret, Kenya: AMECEA Gaba Publications, 1989), pp. 228-235.

⁹⁷ A Meyer and J Meyer, *Earth-Keepers*. p. 79.

⁹⁸ Nehring, *Ecology, a Theological response*. p. 30.

⁹⁹ Nürnberger, *Prosperity, poverty and pollution*. p. 29.

¹⁰⁰ L Kalugila “Old Testament Insights and the Akagera Region, Tanzania,” in J N K Mugambi and M Vahakangas, *Christian Theology and the Environmental Responsibility* (Nairobi: Acton, 2001), p. 85.

of Africa's land area. The main factors that contribute to desertification are deforestation and overgrazing; but also increasingly frequent drought exacerbates the problem.¹⁰¹

2.3.5. Wildlife under siege

As forests shrink and deserts grow on our continent, wildlife are then under siege, as human population penetrates the forests in search of wild animals for food. According to Slack, "thousands of tons of wild animals are hunted every year, both by commercial poachers and by subsistence hunters. Elephants are taken for their ivory, rhinos for their horns, and gorillas for their hands and feet. But the bushmeat trade, hunting for food, has an even greater impact on the wildlife population."¹⁰² Indeed, the destruction of the forest and woodland habitat and the increased activity of poachers pose the biggest threat to the survival of Africa's primates. Areas of greatest crisis, as identified by Slack, are the Guinean forest block of West Africa and the coastal forests that extend down the eastern shores of the Gulf of Guinea. The animals are forced into ever shrinking 'islands' of habitat where increasingly vulnerable species occur in tropical lowland forests.¹⁰³

2.3.6. War and environment

Warfare is a great destroyer of the environment. Warfare causes environmental destabilization. In Uganda, war refugees moved onto marginal lands, destroying trees and ground cover in the process. "Whole groups of refugees sometimes overtax the carrying capacity of land to such an extent that starvation and severe land degradation result, as in Sahel."¹⁰⁴

This is the same situation in Mozambique where war destroyed infrastructure (roads, houses, bridges, etc), and many trees and agricultural activities. When I entered Mozambique for the first time six years ago, the country's environment was not better

¹⁰¹ Slack, "Africa's environment in Crisis." (Website).

¹⁰² Slack, "Africa's environment in Crisis." (Website).

¹⁰³ Slack, "Africa's environment in Crisis." (Website).

¹⁰⁴ Wright and Kill, *Ecological Healing*, p. 27.

than Rwanda's after the 1994 civil war. Usually after a war, each country's environment is destroyed, and it takes time to recover from the shock.

2.4. Environmental crises as a result of people's livelihood strategies in Mozambique

Mozambique's environmental challenges are largely related to the country's recurrent drought in the hinterlands. As a result of these droughts, there is an increased migration to urban and coastal areas, and concomitant adverse environmental consequences. This adds to the environmental crises which result in the livelihood strategies of those who depend on the environment for their survival. Specifically, desertification is occurring, as well as pollution of surface and coastal waters.¹⁰⁵ This section highlights Mozambique's geographical context, its economico-historical situation, its natural resources and the environment, as well as the link between environmental crises with people's livelihoods in this country.

While the thesis focuses on the relationship between poverty and the environment, we must bear in mind that wealth also has a relationship to the environment. Wealthy people may not need to use the environment for day-to-day survival, but their consumption and waste often has just as large an impact. In Mozambique, however, the sheer number of poor people means that this is an important place to begin reflection.

2.4.1. Geographical context of Mozambique

Mozambique is a coastal country located between 21°27' and 26°52' latitude and 30°51' and 40°51' longitude. The total land area is about 800,000 km². It has a coastline of over 2,500 km. About 42% of the country lies within the coastal area. The country is bordered by South Africa and Swaziland in the south, Zimbabwe, Malawi and Zambia in the west, Tanzania in the north and the Indian Ocean in the east.¹⁰⁶

¹⁰⁵ <http://biz.yahoo.com/ifc/mz.html>

¹⁰⁶ Center for Environmental Information and Knowledge in Africa (CEIKA) "Best Practices of Environmental Information System in Mozambique." (Website).



Mapa de Mocambique (Map of Mozambique)

Source: <http://www.mozambique.mz/emapa.htm>

2.4.2. The economico-historical situation of Mozambique

According to the Center for Environmental Information and Knowledge in Africa (CEIKA), Mozambique emerged from a long and brutal war at the end of 1992 with the distinction of being one of the poorest countries in the world. According to the UNDP in 1993, "External assistance was equivalent to nearly 78% of GDP. At US\$4.7 billion, its debt burden in 1991 was more than four times the country's GDP, the highest ratio in Africa."¹⁰⁷ The dramatic economical, political, and social conditions of the country can be summarized as follow:

War, which dated from the struggle for independence in the 1960s, was a major, but not the only factor in contributing to a level of destruction and devastation that earned Mozambique a ranking of 159 in the UNDP Human development Report. The country's colonial legacy, periodic droughts in a country where rain-fed cultivation is extremely sensitive to climatic change, a poorly managed centralized economy, destabilization by antagonistic neighbors, global economic recession triggered by oil-price increases in the early 1980s, and a structural adjustment programme introduced in the late '80s were all factors in Mozambique being one of the most aid-dependent countries in the world in 1990.

As warfare ceased in 1992, it was increasingly apparent that Mozambique's economy and infrastructure had been ruined and a massive amount of assistance would be required to get the country's economy back on its feet. An estimated one million Mozambicans died during the conflict and one third of the country's population, understood to be 16 million in the early 1990s, were up-rooted, 4.2 million were displaced internally and 1.5 million became refugees in neighboring countries. With a per capita GNP of just US\$ 80, some 60% of the population was living in absolute poverty and in need of food assistance. It was estimated that the war had resulted in the destruction of 7% of schools and 50% of clinics and had brought about an almost total collapse in markets.¹⁰⁸

According to the source from the Center for Environmental Information and Knowledge in Africa (CEIKA), for three decades Mozambique has been a disaster-stricken country. The country gained its independence in 1975, after fifteen years of harsh struggle with the aim to end nearly five centuries of Portuguese colonial experience. The Mozambique

¹⁰⁷ Center for Environmental Information and Knowledge in Africa (CEIKA) "Best Practices of Environmental Information System in Mozambique." (Website).

Liberation Front (FRELIMO) was the leading group of an armed movement that finally conducted the Lusaka Agreement (September 1974) “which committed Portugal to the unconditional hand-over of power to a FRELIMO- dominated transitional government.” Unfortunately, soon after independence, a new round of warfare was opened in the western, central and southwestern parts of the country with the emergence of the National Resistance of Mozambique (RENAMO), created and heavily supported by Rhodesia and South Africa. The civil war grew in ferocity after 1980 followed in 1982-84 by one of the most severe droughts and famines ever faced by the country. As a result, millions of rural people were displaced and sent into Maputo and other urban centers, which were already suffering serious food shortages. After many attempts to overcome the situation through negotiations (Nkomati Agreement 1984, Nairobi 1989, Rome 1990), a partial cease-fire was announced in December 1990. In October 1991, the first protocol of a General Peace Agreement (GPA) was signed. During the next two years, other peace talks took place under the auspices of the UN and finally concluded on October 4, 1992, with an agreement on the framework for a transition to a multi- party State, demobilization, and elections.¹⁰⁹

2.4.3. Linking environmental crises with people’s livelihood strategies

Among many environmental problems in Mozambique as highlighted by CEIKA are:

2.4.3.1. Population growth and distribution

Mozambique has an average population growth rate of over 2.6 per year. 51.4% are women and 48.6% are men. Two-thirds of the 16 million inhabitants live in rural areas, and the average density is 23 inhab/km². Since the primary sector of the country’s economy is agriculture, these people exploit the land, in many cases in environmentally unsustainable ways. In addition, many of these people gain their livelihoods through

¹⁰⁸ Center for Environmental Information and Knowledge in Africa (CEIKA) “Best Practices of Environmental Information System in Mozambique.” (Website).

¹⁰⁹ Center for Environmental Information and Knowledge in Africa (CEIKA) “Best Practices of Environmental Information System in Mozambique.” (Website).

cutting trees to get firewood and charcoal for personal as well as commercial purposes. Furthermore, migration and people displacement caused by wars and natural hazards such as prolonged droughts, which also contribute to the environmental crisis, are among the environmental constraints to be addressed today.

2.4.3.2. Water and soil pollution

Some industries or agro-industries in Mozambique are known as sources of water and soil pollution and thus have a strong impact on the state of the population living in their surroundings. Despite their small size, some industrial activities have been located in heavily populated areas without prior environmental impact assessment. Among these, some major cases can be emphasized:

- Waste products resulting from the textile and paper industries (caustic soda and cellulose) which are dumped in rivers and streams in Manica;
- The cement industry with its well-known problems as regards to its filtration systems;
- The engineering of petroleum refining industries situated in the major cities and close to bays into which they discharge untreated effluents; and
- Industrial chemicals as well as explosives, fertilizers and paints resulting from the chemical industry located in Maputo.¹¹⁰

2.4.3.3. Environmental impact of mining

The exploitation of mineral resources and other related activities in Mozambique has local environmental effects such as atmospheric and water pollution, infertility of land, devastation of forests, pollution of populated areas, and changes in the equilibrium of specific ecosystems.

¹¹⁰ Center for Environmental Information and Knowledge in Africa (CEIKA) “Best Practices of Environmental Information System in Mozambique.” (Website).

2.4.3.4. Threatened ecosystems

Mangroves and coral reefs are among the most threatened natural ecosystems in Mozambique. In fact, the mangroves are being destroyed as a whole through their use (agriculture, fish farming tanks, salt pans and traditional uses), which exceeds sustainable production and does not permit regeneration. Indeed, over-exploitation of mangroves is predominantly linked to the general problems of the rapid increase of the population and the associated decline in economic patterns. It is argued that should the country lose its mangroves ecosystem, it will mean the disappearance of one of its most important sources of poles and timber for building, firewood, charcoal, and other products, the loss of space for nourishment and protection of many species of fish, crustaceans, the loss of a shield of protection against coastal erosion, etc.¹¹¹

2.4.3.5. Deforestation

It is estimated that between 45,000 ha and 120,000 ha of the forest disappears annually in Mozambique. Two primary causes of this loss are clearance for agriculture and the high concentration of people due to displacement. Indeed, the intensive use of the land and the exploitation of forests have caused significant local soil degradation and forest depletion.¹¹²

2.4.3.6. Natural disasters, drought, and desertification

Mozambique has more than half of its ten provinces affected by desertification, which was caused by soil degradation in arid, dry and sub-humid lands. Nearly 80% of the Mozambican population has agriculture as a main source for subsistence. In this regard, an inadequate combination of this human sector with nature and the land constitute a heavy burden upon the environment, resulting in serious desertification. In addition as a

¹¹¹ Center for Environmental Information and Knowledge in Africa (CEIKA) "Best Practices of Environmental Information System in Mozambique." (Website).

¹¹² Center for Environmental Information and Knowledge in Africa (CEIKA) "Best Practices of Environmental Information System in Mozambique." (Website).

result of this desertification, there is the migration of communities from their “natural habitat” to places with more security. Coastal erosion is also a major problem that was observed. Indeed in Sofala Province, the erosion has caused a disastrous situation, while in Zambezia Province, the townships of Chinde and Macuse have been nearly destroyed.¹¹³

2.5. Environmental degradation as a challenge to development in Africa

Environmental degradation is a threat to people’s livelihoods throughout the African continent. SADCC countries (Botswana, Lesotho, Malawi, Tanzania, Zambia, Zimbabwe) stated in the Lusaka Declaration (1980), “that the livelihood of the majority of the people of Southern Africa is threatened by environmental degradation, which *undermines both crop and animal husbandry*, the mainstay of rural livelihood in the Region.”¹¹⁴ In December 1985, the severity of environmental degradation, which resulted in food shortages, was realized in some countries and is the reason why African states convened the African Ministerial Conference on the Environment (AMCEN) in Cairo, the first all-African regional conference concerned with the environment, which symbolized the continent’s commitment to conservation and sustainable development.¹¹⁵

There are many challenges of environmental degradation on our continent. According to El-Ashry, environmental degradation is a serious development issue for Africa because of its wider implications on food security, sustainable natural resources management, human health and effort towards poverty eradication.”¹¹⁶

2.5.1. Environmental degradation has an impact on food security

The new report by the International Food Policy Research Institute (IFPRI) and the World Resources Institute (WRI), World food production is at high risk from farming methods

¹¹³ Center for Environmental Information and Knowledge in Africa (CEIKA) “Best Practices of Environmental Information System in Mozambique.” (Website).

¹¹⁴ Salih and Tedla (eds), *Environmental Planning*. p. 4.

¹¹⁵ Salih and Tedla (eds) 1999. *Environmental Planning*. p. 4.

that have degraded soils, polluted waters, and caused the loss of animal and plant species. Indeed, soil degradation has dramatically reduced crop productivity, with severe consequences likely for poor, heavily populated countries. In addition, agricultural lands face an enormous challenge to provide food for the expected population surge of 1.5 billion people over the next 20 years.¹¹⁷

There is therefore a great and urgent need for increasing food productivity without threatening our environment. According to information from Ian Johnson, chairman of the Consultative Group on International Agricultural Research (CGIAR) and a World Bank Vice President, "Our current global population, currently about 6 billion, is expected to increase by more than one quarter over the next two decades." He therefore contends that "we must find ways to increase food productivity to sustain growing populations in developing countries. But this challenge must be accomplished without major increases in the amount of new land under cultivation, which would further threaten forests and biodiversity, and without resorting to unsustainable farm practices."¹¹⁸

2.5.2. Environmental degradation has a great impact on health

Health is considered to be much more than the absence of diagnosed physical disease. "The constitution of the World Health Organization sees health as 'a state of complete physical, mental and social well being and not merely the absence of disease and infirmity'. It implies a complex interaction between humans and their environments,

¹¹⁶ Message from Mohamed T. El-Ashry to the AMCEN special session on NEPAD Environment ACTION Plan. Maputo, Mozambique, June 2003.

¹¹⁷ International Food Policy Research Institute (IFPRI) and the World Resources Institute (WRI), "News Release: New Study Reveals that environmental damage threatens future world food production." Downloaded from: www.worldbank.org/html/cgiar/press/news0102.htm Accessed on Monday, 11 October, 2004.

¹¹⁸ International Food Policy Research Institute (IFPRI) and the World Resources Institute (WRI), "News Release: New Study Reveals that environmental damage threatens future world food production." (Website).

more particularly between social and economic factors, physical environment and biological environment.”¹¹⁹

However, the destruction of the environment has always been part of the human story. Throughout time, environmental problems have been some of the most important factors affecting people’s health, both on the individual as well as at the community level. Research has shown that “in the poorest regions of the world an estimated one in five children will not live to see their fifth birthday, primarily because of environmental-related diseases.”¹²⁰ According to this report’s statistics, this tragedy translates into 11 million childhood deaths a year worldwide, mostly due to malaria, acute respiratory infections or diarrhea, all illnesses that are largely preventable.¹²¹

In South Africa, for instance, research in one Venda village in Limpopo province has shown that in the twelve months preceding a survey in 1982, ten of the thirty babies born to 86 households had died as a result of the lack of clean drinking water.¹²²

It is also reported that, floods, plagues and the environmental consequences of war have continuously led to ill health and premature death.¹²³ Thus, environmental degradation threatens health both *directly* and *indirectly*; and both *immediately* as well as in *the long term*. With regard to immediate and direct effects as a result of environmental degradation, it has been realized how people, mostly the poorest and the marginalized, get sick from drinking polluted water, eating contaminated food, suffering from exposure to polluted air and poisonous chemicals, and spending much of their time in harmful working conditions.¹²⁴

¹¹⁹ See David R. Phillips and Yola Verhasselt (eds.). *Health and Development*. (London and New York: Routledge. 1994). p. 3.

¹²⁰ Leslie Roberts, “Focus: Environmental degradation is contributing to health threat worldwide.” Available at: www.ourplanet.com/imgversu/95/roberts.html Accessed on Monday, October 11, 2004.

¹²¹ Roberts “Focus: Environmental degradation is contributing to health threat worldwide.” (Website).

¹²² See Francis Wilson and Mamphela Ramphela. *Uprooting Poverty: The South African Challenge*. (Cape Town: David Philip, 1989), p. 48.

¹²³ See “The environment and health.” www.phmovement.org/about/background4.html Accessed on Monday, 11 October, 2004.

¹²⁴ See “The environment and health.” (Website).

People's health also suffers in *immediate* and *indirect* ways from, for instance, food shortages caused by environmental degradation of both farmland as well as forests. Here we can also talk about environmental refugees (people who have been forced to leave their homes because of the destruction of their local environment) who often suffer severe hardships and are prone to ill health. In addition, there are many people who are killed or maimed in wars fought over scarce natural resources. Furthermore, there are accidents resulting from environmentally induced natural disasters, such as floods caused by the destruction of forests, which is another example of the immediate and indirect effects of environmental degradation.¹²⁵

However, it has been realized that many environmental threats to health have *direct, long-term (delayed)* effects, about which awareness may be slow to develop. "For example, cancer is increasing rapidly in all areas of the world, largely as a result of exposure to pesticides, carcinogenic chemical substances included in the goods we consume, and increased exposure to various forms of radiation."¹²⁶

In the context of Mozambique, it is reported that the Tsetse fly and the disease transmitted by it (sleeping sickness) are among the principal limitations to the growth of livestock production and consequently of rural development. Indeed, "Approximately 75% of the surface of the country is infested by four species of tsetse, and there are indications that it is advancing southwards, putting livestock production in this area at risk."¹²⁷

The search for a solution to this situation is a most urgent need so that environment is well managed and protected, which will immensely contribute to avoiding a great number of sicknesses. In fact, as it is argued, "because of the environmental conditions that impact upon health are avoidable, prevention of health problems through environmental management, rather than simply treating diseases and ailments after they have occurred is

¹²⁵ See "The environment and health." (Website).

¹²⁶ See "The environment and health." (Website).

¹²⁷ Center for Environmental Information and Knowledge in Africa (CEIKA) "Best Practices of Environmental Information System in Mozambique." (Website).

the salient message of the environment and health section of *World resources 1998-99*.¹²⁸

In addition to this there is a need for development in terms of uplifting people's livelihoods as well as improving the quality of people's lives in each community. Indeed, development is about increasing human dignity, which means access to basic needs: food, shelter, a job; as well as political participation and this should be done in a safe and sustainable way. Development is understood as the process of improving the quality of all aspects of human life.¹²⁹

2.6. Model of our relationship to nature: an environmental ethic

Peter C List characterizes today's human relationship with nature as an 'anthropocentrism', a dominant, mainstream and expansionist model of modernism, as a model of our relation to nature in which people believe that humans exist apart from and outside of nature; it accepts a utilitarian value system. Nature, in this context, is regarded as essentially a "storehouse of resources to be utilized for the meeting of ever-increasing material needs by an ever-increasing human population".¹³⁰ Consequently, as List maintains, "This position equates growth with the progress of development which, in turn, is regarded as a prerequisite for human happiness and prosperity."¹³¹ This speaks of our urgent need to adopt an ecocentric model, rather than an anthropocentric one, as we consider the great value of nature, which is God's creation.

2.7. Conclusion

More than any other part of the world, Africa relies on its environmental resource base, from both an economic as well as a social perspective. However, as we have discussed throughout this chapter, the African environment is at high risk for several reasons such

¹²⁸ Roberts, "Focus: Environmental degradation is contributing to health threat worldwide." (Website).

¹²⁹ Phillips and Verhasselt, *Health and Development*. p. 4.

See also World Health Organization, *Our Planet, Our Health: Report of the WHO Commission on Health and Environment*. (Geneva: WHO. 1992).

¹³⁰ Peter C List, *Environmental Ethics and Forestry*. (Philadelphia: Temple University press, 2000), p. 335

as land degradation, deforestation, pollution, etc. These different ways in which our environment is damaged explain how environmental degradation in Africa constitutes a development issue for the continent. Thus, as John Shao maintains, “Africa must not allow the continued degradation of its environment in the name of either development or short-term financial gain. Instead, it has to accompany development efforts with due concern for the protection of its natural environment to ensure that it can sustain present and future generations.”¹³² In fact, as it was expressed during the Earth Summit in 1992, without improving environmental management, development will be undermined and, without accelerating development in poor countries, the environment will continue to degrade. Therefore, there is a need to understand better the issues of environmental degradation, so that measures can be taken with regard to looking for solutions to the crisis. The next chapter will discuss this reality of environmental crisis based on my fieldwork in Matutuine District, one of seven districts that form the southern province of Maputo.

¹³¹ List, *Environmental Ethics and Forestry*. p. 335.

¹³² John Shao, “Alleviating Poverty in Africa” in D. Belshaw, R. Calderisi and C. Sugden (eds.) *Faith Development: Partnership between the World Bank and the Church in Africa*. (Oxford: Regnum Books, 2001), pp. 29-30.

Chapter Three

FIELDWORK: ENVIRONMENT AND LIVELIHOODS IN MATUTUINE DISTRICT, MAPUTO-MOZAMBIQUE

3.0. Introduction

Matutuine is believed to be the poorest district in the province of Maputo. When I arrived in Matutuine for the first time in 2001, I was initially shocked by the poverty of people in that area. Thus, as we drove from Ponta do Ouro (on the border with South Africa) to Catembe (closer to the city of Maputo), I discovered that this is a poverty stricken district. Along the road we came across people carrying wood from the bush or forest, and those with charcoal on sale, etc. Indeed you see people living by exploiting the environment, and in many case, in an unsustainable way. This is therefore the first time I started to wonder about the environment, and this is my main motivation as I decided to investigate how this is linked to people's daily life.

This section discusses the Matutuine District and how the livelihood strategies of the people are linked to the environmental degradation. Based on my interviews, I will discuss first the struggle that people in Matutuine encounter to make a living. Secondly, I will discuss the link between the environment and livelihood strategies in Matutuine. Thirdly, I will point out people's beliefs, values and mindset with regard to the environment. Fourthly, what can be suggested as a contribution from the church and the government in this regard?

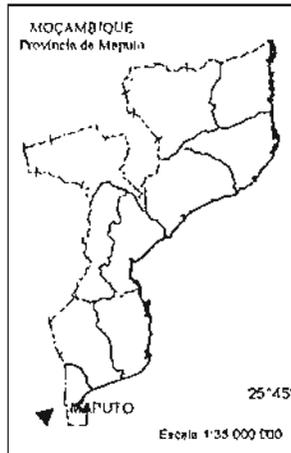
3.1. About Matutuine District

Matutuine district is located in Maputo Province, one of ten provinces that make up the country of Mozambique, and is situated in the southern part of the country. Located in the south of Maputo, Matutuine District shares borders with South Africa and Swaziland in the south, and with Namaacha and Boane in the north.¹³³

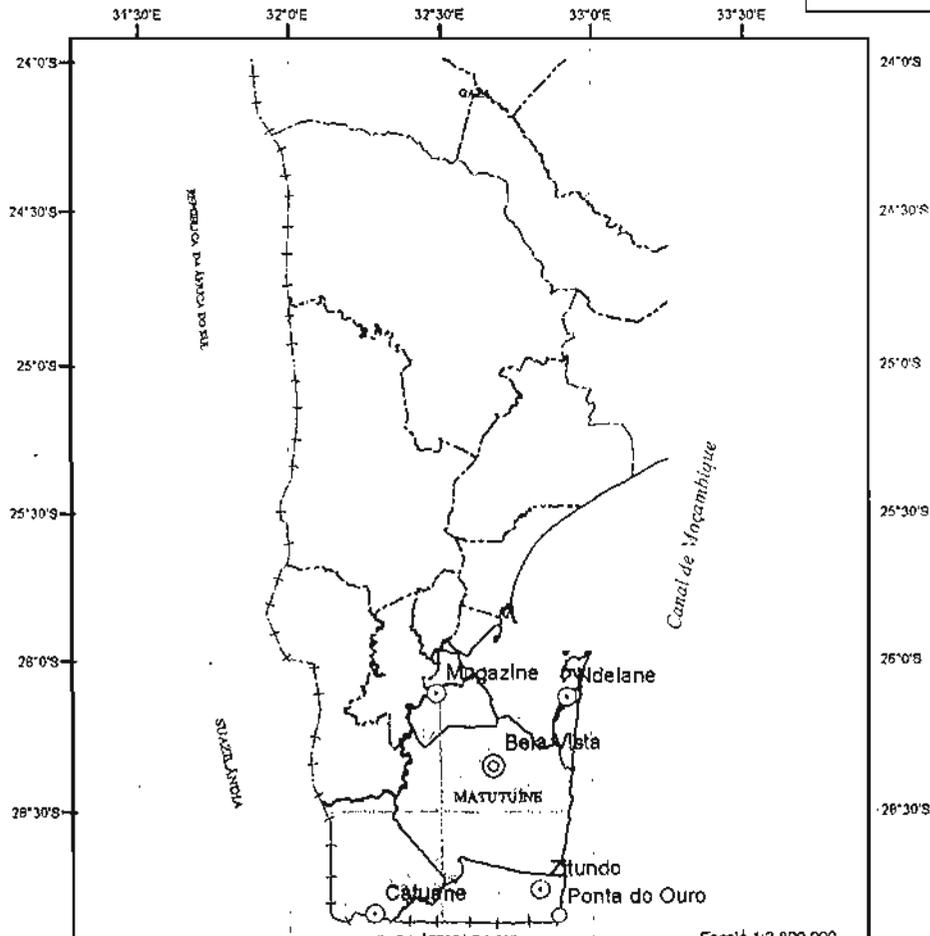
¹³³ See the map of the district on the next page.

DISTRITO DE MATUTUÍNE

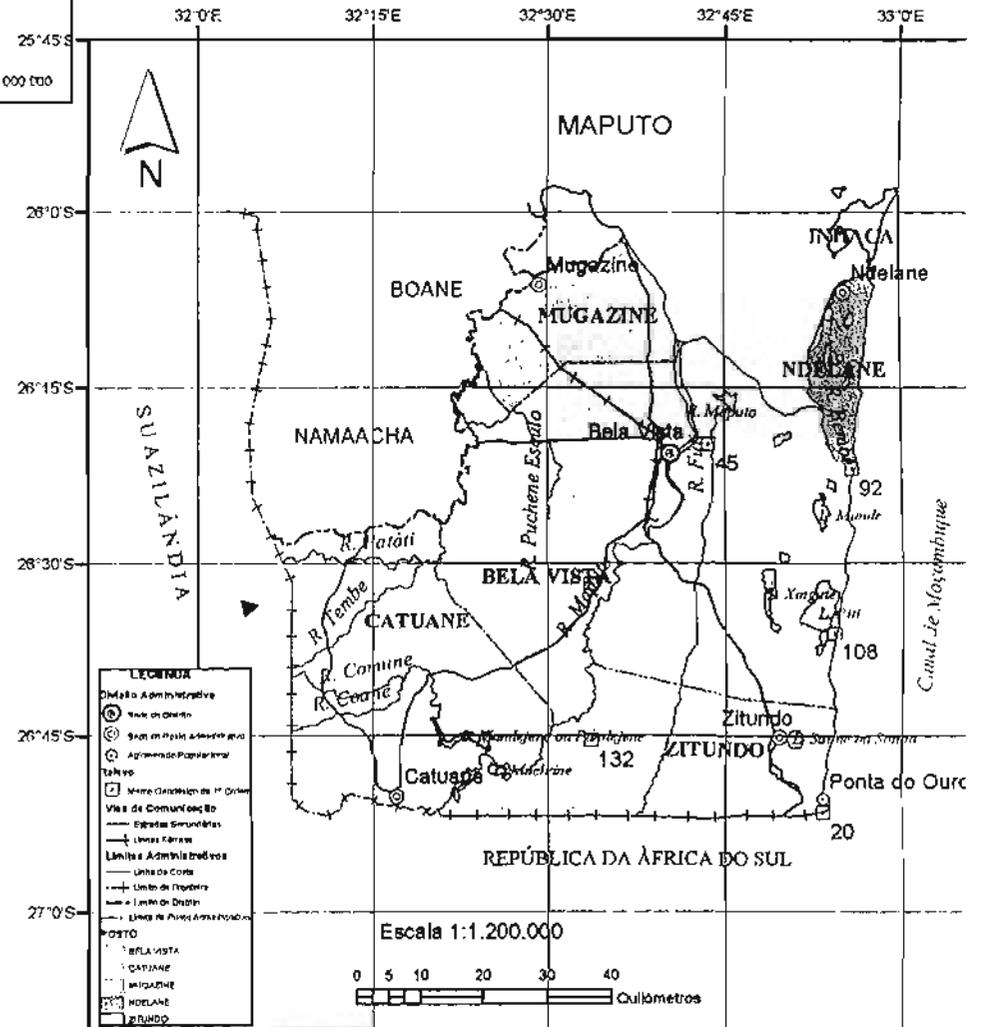
Enquadramento Regional



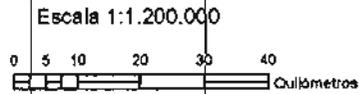
MAPUTO
Distrito de Matutuíne



DISTRITO DE MATUTUÍNE



- LEGENDA**
- Distrito Administrativo
 - Nome do Distrito
 - Sede do Distrito
 - Sede do Posto Administrativo
 - Agrupamento Populacional
 - Talveço
 - Unidade Constituinte do 1º Grau
 - Vias de Comunicação
 - Estrada Comunitária
 - Linhas férreas
 - Limites Administrativos
 - Unidade Costeira
 - Limite do Países
 - Limite do Distrito
 - Unidade de População
- POSTO**
- BELA VISTA
 - CATUANE
 - MAGAZINE
 - MDELANE
 - ZITUNDO



The District head office is at Bela Vista under the leadership of Mr Malio Daniel Ngome. It has five *Posto Administrativo* (administrative posts), which are: Katembe (Mugazine), Bela Vista, Catuane, Zitundu, Ndelani (Machangulo). Each *Posto* has its leader (also called *Chefe de Posto*), and under his/her leadership are *Secretarios* (or *Indunas*) who lead the *Circlos* or *Cellulas*. The district comprises 5,403 km², and has a population of around 37,000, with 6.5 inhabitants / km².

There are three main languages spoken in Matutuine, which are *Mandindin* (in the central part- Bela Vista), *Shangaan* (in the northern part- Katembe) and *Zulu* (in the southern part- Catuane and Ponta do Ouro).

There is also a diversity of religions, and the main groups are Christians, African Traditional Religion, and Muslims. I visited *Igreja Assembleia de Deus, Nazaren* and the Baptist Church in Ponta do Ouro.

In the eastern part of the district is the *Reserva Especial de Maputo*, where many animals, including many elephants are found. There are many rivers such as Rio Maputo, Rio Futi, Rio Tembe, etc. and many lakes or dams, such as Tsembyanhi, Sotiba, Lagoas dos Camaroes, Piti, etc.

3.2. Environmental crisis in Matutuine District

The environment in Matutuine has been undergoing a crisis in many ways. During the time of war and floods, this district was among the most affected. Indeed, when the war in Mozambique that killed thousands of people was over, Matutuine was one of the districts in Maputo Province that faced a serious and deadly menace of landmines that continued to take many people's lives. In her letter highlighting their visit in Matutuine, Kathy Gonçalves, maintains that: "This rural area in southern Mozambique was ringed

with white ribbons and draped with bright red signs that read "PERIGO - MINAS!!!": "DANGER - MINES!!!"¹³⁴

Furthermore, Matutuine district was among the districts that were seriously affected by the flood during the year 2000. This affected people's livelihoods as they could no longer depend on agriculture as usual. This resulted in the onset of epidemics or even deaths from malnutrition. According to the Mozambique News Agency, "Thousands of residents of various administrative posts in Maputo province's southernmost district of Matutuine have been without food for several days, since all access roads to Bela Vista, the district capital, and between the various posts, have been cut by flooding."¹³⁵

To date, the district is suffering from the effects of urbanization. According to F Pearce, "in environmental demography, large cities are seen as parasites on the surrounding farmland."¹³⁶ Indeed, urbanization, which is a process by which an increasing proportion of a given population resides in urban rather than rural places, has the potential for both positive as well as negative effects on rural environment.¹³⁷ This has been a reality even in Matutuine District, where the rapid urbanization within the capital city of Maputo has had remarkably strong effects. This situation leads us to the next section which links environmental degradation with people's actions in making their living.

3.3. The Link between environmental degradation and making an every day living

In December 2004 I was in Matutuine for my fieldwork, with the aim of investigating the link between the environmental degradation that is taking place in this district, and people's struggle in making a living. This section discusses the people's key struggles, the links which exist between the environment and making a living, the values, beliefs

¹³⁴ See Kathy Gonçalves, "The Minefields in Matutuine" From: <http://www.landmines.org.uk/Countries/MineFields/Articles/158> Accessed on August 10, 2004

¹³⁵ Mozambique News Agency, "Flood victims in Matutuine lack supports". From: www.reliefweb.int/w/rwb.nsf Accessed on August 10, 2004.

¹³⁶ F Pearce, 'Deserting dogma', *Geographical*. January, 66 (1), 1994, pp. 25-28.

¹³⁷ Hamish Main, "The effects of urbanization on rural environments in Africa" in Tony Binns (ed), *People and Environment in Africa*. (Chichester -UK: John Wiley & Sons Ltd, 1995), p. 47.

and mindsets that explain the reason why people take from the environment and do not care for it, and suggestions of what can be done by the church and the government.

3.3.1. People's key struggle to making a living

I had a chance to talk with several people and most of them emphasized poverty as a general situation in the whole district. The issues that were being emphasized are the lack of enough food, lack of clean water, very few schools with poor conditions for education, and very few clinics and in many cases without enough medication. People in Matutuine also face problems of transport, commerce and environmental issues as emphasized by Vincente Americo Fuzanto, the Director of Commerce in Bela Vista, Matutuine District.¹³⁸

3.3.2. People exploit the environment for survival in an unsustainable way

Many people in Mozambique exploit the environment for survival in an unsustainable way. My interview with Simeoni from Nampulã Province, which is the most populated province in Mozambique where the majority of the people live by agriculture, revealed to me that most of the people in rural areas profit from the environment for their survival. This is done primarily by using land for agriculture as well as cutting trees to make charcoal for commercial use and firewood for personal use. According to Simeoni, people are busy misusing the environment, and, though this may benefit this present generation, it is evident that the future generation will suffer the consequences. In the district of Chayane where he comes from, for example, you can rarely find a tree that is standing, as people will cut all trees for charcoal before they mature. This situation is also significant here in Maputo, since only a few people can afford to use electricity for cooking. Petrol and gas are also very expensive. As a result therefore, most of the people use charcoal and firewood, and the wood comes from outside Maputo, from places such

¹³⁸ Vincente Americo Fuzanto. Interview by Anastase Nzabilinda on Thursday 16 December 2004 in Bela Vista (Matutuine).

as Matutuine, Maracuene, Mahnica, Bobole, Moamba, etc. People will therefore cut all standing trees for their use even if this is done in an unsustainable way.¹³⁹

Simeoni, like most of the others I interviewed, maintains that people take from the environment to survive, and people in fact do not care for it because they are not provided with other means to live on. Many people talked about their involvement in agriculture without any support from the government; and thus they have to burn bushes, since their means are limited, in order to get a piece of land for agriculture. They all acknowledge that the government is aware of what is happening, and in many cases actually, authorize the environment to be degraded. “The government is to be blamed because even those trees are cut by the people who receive permission after paying money to the government officials,” one said. An example was given of some Portuguese people who came as tourists to Cabo Delgado Province (in the north on the boarder with Tanzania), and got authorization to cut a great many trees to ship back to Portugal.

3.3.3. People kill animals for their survival

One of the biggest reserves in Mozambique is the *Reserva Especial de Maputo*, also known as Maputo Elephant Reserve, which is located in Bela Vista (Matutuine). This reserve has facilities for visitors at its tented safari-style camp at *Ponta Memben*. The park lies only forty kilometers southeast of Maputo City and just 150km from Ressano Garcia / Komatipoort boader post with South Africa. Created in 1932, ‘*Reserva dos Elefantes do Maputo*’, which was its previous official title, comprises 79,400 ha.¹⁴⁰

As happened in the Gorongosa National park (*Parque Nacional da Gorongosa*) as well as in the Niassa Game Reserve (*Reserva do Niassa*), both located in the north of Mozambique, many animals in Maputo Elephant Reserve have been killed by people who invade the reserve to get meat. During my interview with the people who live near the reserve, I was told that, on the one hand, some people hide and kill animals without being

¹³⁹ Simeoni. Interview by Anastase Nzabilinda in Maputo- Mozambique on Wednesday 15 December 2004.

¹⁴⁰ See Mozambique Tourism at: <http://www.moztourism.gov.mz/potencial/maputop.htm>

noticed by officials who guard the reserve. On the other hand however, some people do pay money to get access to the animals that they want to kill. A person in Boane District who did not want to mention his name, told me that he has a friend in Bela Vista who never buys meat, but who kills animals in the reserve for meat whenever he wants.

3.3.4. People burn bush to hunt '*ratazana*'¹⁴¹

During my visit to the District office in Bela Vista I was told about the kind of hunting that takes place around Matutuine, through burning grasses. According to Vincente Americo Fuzanto, who is currently the Director of Commerce in Matutuine District, people seek to benefit from the environment by bad behavior. Indeed, people all over Matutuine burn the bush in order to hunt *Ratazana*, an animal that lives in the tall grass. Sometime they get this animal, sometimes they do not. In fact, some people are encouraged to burn the bush so that they can control the movement of animals. But whenever this burning takes place, damage is done to the environment as well as other living creatures that are living there.

3.3.5. People cut *estaka*¹⁴² to build homes

Most of the houses in Matutuine are shacks, and people build these houses using trees that they cut from the bush, that are called locally *estaka*. They cut all the trees and in some places there are no longer trees standing, and those who want to build must walk long distances to get enough *estaka*. Though there may be nothing wrong with cutting trees in order to build one's house, this activity is done in an unsustainable way, since it ends up removing all the trees while no one thinks of planting more trees as a substitution. As a result therefore, though this provides for those who cut the trees, it creates an uncertainty of how the next generation will survive if they do not find these trees.

¹⁴¹ '*Ratazana*' is a Portuguese name of a kind of animal, also known as '*Vondo*' in Shangaan language, which lives in the bush.

¹⁴² Trees that people cut in the bush that are used in the construction of shacks.

3.4. Beliefs, values and mindsets behind this link

Like many African people, Mozambicans believe in the unity and harmony of creation which is an African view with regard to creation. As we see in this section however, there are some beliefs, values and mindsets that contribute to environmental degradation in Mozambique, though most of those who degrade the environment do it as a way to survive due to the poverty situation.

3.4.1. Unity and harmony of creation as an African view

Africans believe that God is transcendent and the cause of every thing that exists: God is indeed actively involved, touching each and every event, such as the germination of a seed, flowering of a plant, and birth of child.¹⁴³ This shows that since all creatures emanate from God, there should be no degradation or harm done to any creature. The Kikuyu and Masai of Kenya, for instance, never saw themselves as masters of nature. Rather they were part and parcel of it. They believe that human beings are part of the universe, which also has animals, plants, and inanimate things.¹⁴⁴ In the Malawian context, the universe is full of sacred life, and they believe that human life is inseparably bound to nature, and that both human life and that of other creatures are one with the divine.¹⁴⁵

According to African traditional beliefs, God, ancestors, animals, plants, stones, air, etc. must live harmoniously. This shows that all creatures depend on one another. For this reason, disharmony means disaster in African culture. If the rains failed, for instance, or if human beings cut the trees and killed all the animals, there would be disharmony, chaos, and finally the death of all entities.¹⁴⁶ This is explained by the Kenyan culture of

¹⁴³ Eugene Wangiri, "Urumwe Spirituality and the Environment", in M Getui and E A Obeng (eds), *Theology of Reconstruction*. (Nairobi: Acton, 1999), p. 71.

¹⁴⁴ Gitau, *The Environmental Crisis*. p. 117.

¹⁴⁵ Harvey Sindima. "Community of Life: Ecological Theology in African Perspective" in BC Birch, W Eakin and JB McDaniel, *Liberating Life: Contemporary Approaches to Ecological Theology*. (Maryknoll: Orbis, 1990), p. 144.

¹⁴⁶ Wangiri, "Urumwe Spirituality and the Environment". p. 72.

urumwe¹⁴⁷, which is also similar to the Rwandan and Burundian beliefs. Thus, since all things are interconnected, people should respect the earth and all that which lives in it. The urumwe spirit reminds people in Africa to love and respect the environment.

Unity and harmony of all God's creation is also at the center of beliefs of Mozambicans with regard to the environment. According to Rev Diniz Matsolo, the General Secretary of CCM (who is also originally from Matutuine District), Mozambicans are at peace with nature and there is actually no culture which is against nature.¹⁴⁸ Indeed, all the people that I interviewed demonstrated their desire to enjoy a right relationship with nature.

3.4.2. Why then this environmental degradation?

However, after many days of visits and interviews in Mozambique, especially in the district of Matutuine, I discovered some mindsets, values and beliefs that contribute to the link between this environmental degradation and people's livelihood strategies. Almost everybody that I interviewed talked about profiting from the use of the environment as a means of survival. So clearly, poverty and livelihood strategies are the primary cause of the degradation. However, it is important to note that there is a mindset that allows this to happen, because there are no beliefs or values that prohibit it.

3.4.2.1. Some beliefs, mindsets and values

There are a variety of beliefs, mindsets and values which I discovered from people during interviews that may allow this crisis to occur:

(i) The environment is for us to live on

Throughout my interviews, I have been seeking to discover people's mindset that is linked to this environmental degradation. As I insisted in asking people why people take

¹⁴⁷ This is a Kenyan word meaning oneness or togetherness.

¹⁴⁸ Rev. Diniz Matsolo. Interview by Anastase Nzabilinda in Maputo on Monday 13 December 2004.

from the environment, some of them revealed to me that the environment is for them to live on. Indeed, those who responded in this regard consider the environment as God's provision for their food. However, none of these people could answer me when I asked what happens when the environment goes wrong and the reason why they do not care for it. When I analyzed their relationship with the environment, I found a mixed attitude: people did not have a good understanding of the environment and the reason why we need to take care of it, so that even when we take from it, we need to do it responsibly. Indeed we need to seek the integrity of God's creation, encouraging its harmony, and thinking about the future generation.

(ii) People are money-motivated

The value that is behind this link is that people are money motivated, and as a result, the environment does not mean anything. According to Vincente Americo Funzanto, the Director of Commerce in Matutuine, people are becoming money motivated so that they no longer think of caring for the environment. People do not usually make charcoal just to be used in their homes; instead, tons of charcoal is made and carried in trucks each day to Maputo where it is sold in huge quantities. Those who buy in rural areas like in Matutuine, are paying very little (i.e. 40,000 Mt a sack, ca USD 2) and they sell it for large profits (230,000 Mt ca USD 11.5).

(iii) Burning bush is about the cleanliness

My interviews also revealed to me that some people believe that burning bushes is about the cleanliness. There are so many animals that live in the bush; some of them are dirty and dangerous to humankind. Some of those who told me about this, cited the cobra or snake as dangerous, and that most of those who burn bushes to clean their environment are concerned with killing snakes.

3.4.2.2. People degrade the environment for their means of survival

Though people in Mozambique recognize the African view of unity and harmony in God's creation, they degrade the environment as a means of survival. I realized that when people say, "We cannot die while the environment is there..." this does not necessarily mean that people are acting egocentrically. They are trying their best to survive in a situation of poverty. According to Funzanto, after the war more people became unemployed and the government did not provide any means to assist most of these people in their daily living. People then have been trying to do something in order to survive, even if it involves destroying the environment or killing animals which are under the government's protection.¹⁴⁹

3.5. Conclusion

This chapter has highlighted my fieldwork report in Matutuine District, a poor district located in the southern part of Maputo Province in Mozambique. This is a Case Study in the exploration of environmental issues and how they relate to the security and sustainability of people's livelihoods. When I visited this district for the first time in the year 2001, I noticed an extreme environmental degradation which is caused by the local people in their search for their daily living. Thus, for a long time, this memory occupied my mind until I decided to do research on this concern. For several days while I visited Matutuine, I had a chance to meet more than twenty people with whom I had semi-structured interviews in order to find out the reality of the link between environmental degradation and livelihood strategies. The environmental crisis in Matutuine is due to different factors, mainly war and floods. Mines are all over as a result of the war and, during the time of floods, the whole southern part of Mozambique was affected, which includes this district. This therefore adds to the gravity of the crisis of the environmental degradation caused by people in their pursuit of daily livelihoods. Indeed, many people survive through cutting trees to make charcoal that they sell to get income, others hunt animals and burn the bush. This situation is alarming because it increases people's

¹⁴⁹ Vincent Americo Fonzanto. Interview by Anastase Nzabilinda in Matutuine District.

struggle with poverty. In addition, this case study on Matutuine helps us to analyze the environment and livelihoods in the context of the whole country of Mozambique, to which we now turn.

Chapter Four

ANALYSIS: ENVIRONMENT AND LIVELIHOODS IN MOZAMBIQUE

4.0. Introduction

In the second chapter we discussed the environmental crisis which is a key development issue for the African continent. In the third chapter, our case study of Matutuine in Mozambique clearly showed the reality of the environmental degradation as a result of people's daily living. This chapter seeks to analyze the environment and livelihoods in Mozambique. We will briefly look at the Sustainable Livelihood Framework (SLF), which is a tool that helps us to understand the livelihoods of poor people. In fact, being an approach which is highly recommended as appropriate for development, the SLF can be used to understand environmental degradation which is the result of poor people's livelihood strategies. Indeed, the key to understanding the link between environmental degradation and poor people's livelihoods lies in the discovery of the beliefs, mindsets and values which exist behind it. In addition, this will help us to understand what has been blocking these people from seeing this link. The understanding of all of these facts will guide us in our search for a significant contribution that Christians can make to the environment and the livelihoods of poor people in Mozambique.

4.1. Introducing Sustainable Livelihoods

The term "sustainable livelihood" is defined as "one which can cope with and recover from stresses and shocks, and maintain and enhance its capabilities and assets for the next generation."¹⁵⁰ The Sustainable Livelihood Framework, as developed by the (UK) Department for International Development (DFID), is a useful tool for building an understanding of livelihoods. This approach puts people at the center of development, focusing on what they can do rather than what they produce. It stresses the identification

¹⁵⁰ http://www.ecs.co.sz/cca/cca_2.htm

of opportunities and builds on strengths rather than focusing on constraints.¹⁵¹ This is an approach which has been adopted by a number of governments, non-government and multilateral organizations, such as The British Department of International Development (DFID), the People Centered Development Forum (DCD Forum), Oxfam, CARE and the United Nations Development Program (UNDP).¹⁵² The UNDP, as Steve de Gruchy notes, has been authorized to promote SL as a way of combating and alleviating poverty as well as promoting sustainable human development.¹⁵³

According to the UNDP's fourfold key features of this approach, Sustainable Livelihoods are those that are: firstly, able to cope with and recover from shocks and stresses such as drought, civil war and policy failure through adaptive and coping strategies. Secondly, they are economically effective, or able to use minimal inputs to generate a given amount of outputs. Thirdly, they are ecologically sound, ensuring that livelihood activities do not irreversibly degrade natural resources within a given ecosystem; and fourthly, they are socially equitable, suggesting a promotion of livelihood opportunities for one group would not foreclose options for other groups, either now or in the future.¹⁵⁴

In the context of our study on environmental issues, the DFID has argued that a livelihood is environmentally sustainable when it is able to:

Maintain or enhance the local and global assets upon which a livelihood depends, and has net beneficial effects on other livelihoods. Also a livelihood can be said to be socially sustainable when it is able to cope and recover from stress and shocks, and at the same time provide for those in the future generation.¹⁵⁵

¹⁵¹ Jock Campbell, "Linking the Sustainable Livelihood approach and the Code of Conduct for responsible fisheries". University of Exeter Campus. December 1999. From: www.ex.ac.uk/imm/ Processed on October 17, 2004.

¹⁵² See Miranda Cahn, *SLA: Concept and Practice*. Massey University.

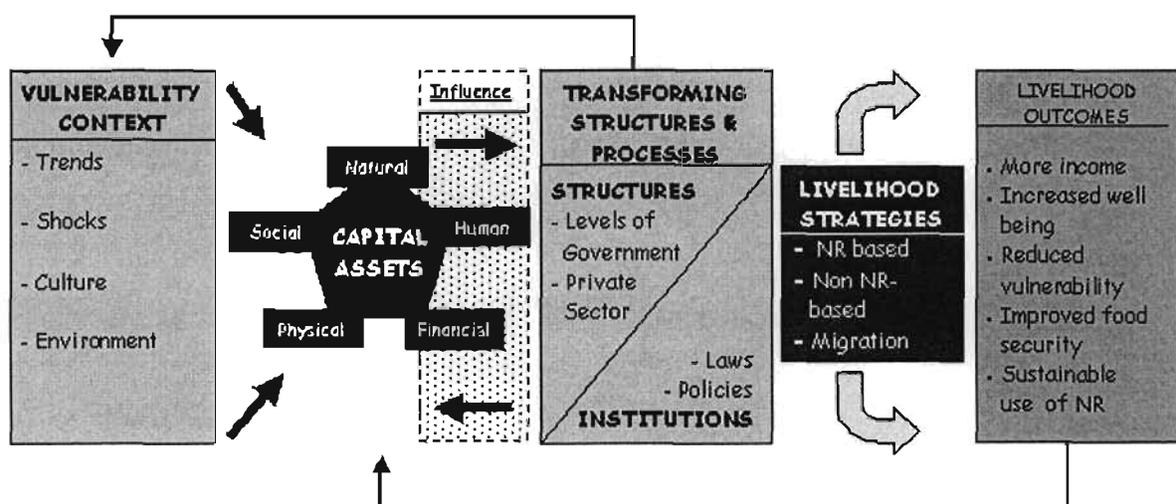
¹⁵³ See Steve de Gruchy, *A theological appreciation of the Sustainable Livelihood Framework*. This is an unpublished paper presented at the inaugural meeting of the Society for the Urban Mission, Pretoria- South Africa, July 2004, p. 1.

¹⁵⁴ UNDP, Sustainable Livelihoods. www.undp.org/sl/index.htm

¹⁵⁵ Department for International Development, *Livelihoods Connect*. From www.livelihoods.org

Therefore, in trying to understand the link between environmental degradation and livelihood strategies in Mozambique, as well as in discovering the beliefs, mindsets and values that lie behind that link, there is a compelling reason to use the SLF. This use of the SL approach serves not only as a tool to understand this link, but also and more importantly to plan development intervention in the light of the poverty situation.

4.2. Overview of the SLF as applied in the context of Mozambique



This Sustainable Livelihood Framework diagram is from:

http://www.deliveri.org/deliveri/progress/livelihoods_fig1_1.htm

The Sustainable Livelihood Framework identifies five key elements, as represented by the boxes, which are interrelated as shown by the arrows. This section briefly introduces these elements, and in the next section we will examine each in greater detail as we analyze the situation of livelihood strategies in Mozambique.

The first element of this framework is the vulnerability context. This is in fact an immediate recognition of how risky and vulnerable people's lives are because of the circumstances that are usually beyond their control. The second element as represented by the second box is the livelihood assets, which are: human capital, natural capital,

financial capital, physical capital and social capital. These assets describe what people may have at their disposal (type of assets) to survive and shape their livelihoods in the face of the vulnerability context. Indeed, these assets work together, having a significant relationship with one another. The next box refers to policies, institutions and structures, which represent structures in the society and culture that control and influence the way in which assets can be utilized in the pursuit of livelihoods. Then comes the next box representing livelihood strategies, which are a range of activities that people undertake to combine the assets available in order to best achieve desirable livelihood outcomes, which is the last box, and these can either be positive or negative. The final element is the arrows, which indicate the interrelationship between these five elements. We now proceed to examining these elements in the context of Mozambique.

4.3. Analysis of livelihoods in Mozambique with the SLF

Having discussed environmental degradation generally, it has been observed that in Mozambique poor people degrade the environment in the pursuit of their daily livelihoods. This section aims at analyzing and examining key elements of the SLF in the context of livelihood strategies in Mozambique.

4.3.1. First element: Vulnerability context

This has to do with the external environment in which people live their lives. “Vulnerability has potentially negative effects on household well-being, either through effects on household assets or through removing or reducing returns to income-generating activities.”¹⁵⁶ People and their livelihoods are at risk as a result of different influences (effects), which they have no control of. These effects include shocks (such as natural disasters, household health problems, injury or death in the family, violence or economic shocks), trends, and seasonality (which refers to shifts around prices, production, health, employment, and which makes it difficult to maintain livelihoods throughout the year). In this regard, the poorest are often those who are most vulnerable

to changes in their living 'context'. In this context, each household, in order to survive, draws on the assets that are available to it.

The history of Mozambique shows us a country devastated by wars and insecurity which has placed people in a prolonged vulnerability situation. In 1975 Mozambique became one of the last sub-Saharan African countries to gain independence, following a prolonged war with the Portuguese colonizers that begun in the mid- 1960s. Then followed the war waged by the rebel group of RENAMO against the ruling party FRELIMO, and that was most intense during the 1980s, especially in 1986 and 1987. Fighting was concentrated in the central and northern regions of the country and millions were forced to leave their land for urban centers and neighboring countries such as Malawi, Zimbabwe and South Africa. The civil war ended in 1992, followed by the country's first multiparty elections in 1994.¹⁵⁷

Another part of the vulnerability context in Mozambique has been shocks deriving from natural disasters, especially during the alternate periods of serious flooding and droughts. Margaret Hall and Tom Young report about the Limpopo and Incomati rivers which flooded in early 1977. This was known as the worst flood in living memory, rendering at that time, some 400,000 people homeless and causing some US\$ 34 million worth of damage. The Zambezi also flooded in early 1978, resulting in some US\$ 60 million worth of damage and affecting some of Mozambique's most fertile zones. Serious water shortages in some parts of the country (especially Inhambane) turned into full-scale drought in 1980, leading the government to make an urgent appeal for international food aid. By the end of 1980 the drought was seriously affecting about 1.5 million people in six of the country's ten provinces.¹⁵⁸ This 1980 drought, which reportedly lasted until 1983, was followed by floods in 1984-1985 and two other severe droughts in 1986-1987 and 1991-92, respectively.¹⁵⁹

¹⁵⁶ Adam Pain and Lautze Sue. "Addressing Livelihoods in Afghanistan", Afghanistan Research and Evaluation Unit: September 2002, p. 14.

¹⁵⁷ See www.ifpri.org/pubs/abstract

¹⁵⁸ Margaret Hall and Tom Young, *Confronting Leviathan: Mozambique Since Independence* (Athens, Ohio: Ohio University Press, 1997), p. 106.

¹⁵⁹ Alessandro Rebucci, IMF. Why did Mozambique fall into debt? *Mozambique's debt burden in historical perspective*. From: http://www.afrol.com/Countries/Mozambique/backgr_debt_history.htm

The most prominent image of Mozambique in early 2000 was that of helicopters lifting stranded people from tree tops, as raging flood waters swirled beneath them. This tended to reinforce a stereotype of Mozambique as a land of perpetual misery.¹⁶⁰ Indeed, the heavy floods of 2000 and 2001 had already destroyed large quantities of crops, damaged infrastructure and led to displacement.¹⁶¹ The human impact was extensive, most particularly at the level of rural households. Some 700 people were killed and 500,000 people were displaced, relocating to temporal resettlement camps. Many of them were left destitute by the loss of their homes and productive assets. There was a drop of some 50% of cereal production in Gaza Province, and 10 to 15 percent in Inhambane and Maputo Province. With regard to drought, from January 2002 onwards, Mozambique has been suffering from below-average rainfall in the southern and central parts of the country, which has resulted in pockets of very poor harvests. According to the National Vulnerability Assessment Committee (VAC), 587,000 people are in need of assistance. Half of those affected by the drought are children.¹⁶²

It is also to be remembered that during February 2000, Mozambique was devastated by tropical cyclone Eline. According to the Mozambican government's estimates, some two million people were affected by the force of the cyclone and subsequent floods which led to four hundred thousand people being displaced and more than six hundred and forty deaths in five of the country's provinces. It is estimated that more than 170,000 hectares of crops were destroyed. Damage to agriculture was so extensive that Mozambique, at least in the affected areas, suffered from a food crisis for the next few months.¹⁶³

Clearly, the vulnerability context of a large number of people in Mozambique contributes directly to their poverty condition. As we have noted, the history of Mozambique is marked by unrest and instability, as well as by other factors, and therefore, a great number of people do not have a chance to receive education. As a result unemployment

¹⁶⁰ See "Mozambique: growth with poverty" at: <http://www.un.org/ecosocdev/geninfo/afrec/subjindx/143moz1.htm>

¹⁶¹ See "New round of assessments on drought vulnerability starts" at <http://www.scienceinafrica.co.za/2002/december/drought.htm>

¹⁶² See "New round of assessments on drought vulnerability starts". (Website).

has become a serious issue throughout the country, and people try to survive through exploiting the environmental resources. This results in different ways in environmental degradation.

This crisis that the environment is undergoing makes the entire country and its inhabitants vulnerable, and each day this vulnerability context is increasing. Indeed, most of the people that I interviewed revealed to me that nobody could think of the future (of both people and the environment) if he or she could not survive today, and there is no other choice but to exploit what is available for their survival.¹⁶⁴

Finally, we cannot forget to mention how the AIDS pandemic has contributed to the vulnerability context. Globally, the latest statistics on the world epidemic of AIDS & HIV as published by UNAIDS/WHO in December 2004 shows that “during 2004, around five million adults and children became infected with HIV (Human Immunodeficiency Virus), the virus that causes AIDS. By the end of the year, an estimated 39.4 million people worldwide were living with HIV/AIDS.”¹⁶⁵ Considering Mozambique, reports show that 1.3 million adults and children are living with HIV/AIDS in this country alone.¹⁶⁶ We can therefore see how 12 years of civil war (1980-1992), followed by drought and natural disasters in recent years, as well as the effects of the HIV/AIDS epidemic, have made Mozambique very vulnerable to threats of food insecurity and poverty.

4.3.2. Second element: The livelihood asset portfolio

The SLF helps us to examine the livelihood assets that are available for households. There are different sorts of assets or capital: they can be categorized as financial, physical, social, human and natural. People draw on them in different ways to carry on

¹⁶³ See “Conference on reconstruction and reducing the vulnerability of Mozambique” Italy, 3-4 May 2000. <http://www.reliefweb.int/w/rwb.nsf/0/332cd181a80acb60c12568d600515bbb?OpenDocument>

¹⁶⁴ We will see this in detail on the section regarding the report on the fieldwork

¹⁶⁵ See “World estimates of the HIV&AIDS epidemics at the end of 2004” available at www.avert.org/worldstats.htm

¹⁶⁶ See UNAIDS, *Report on the Global AIDS Epidemic*, 2004.

their lives, to make profits in the good times and to preserve themselves and their families in the bad times. It is obvious that the heart of the framework should be essentially the household and its portfolio of assets. It is important to note that referring to five different capital types does not imply that each household actually has these at its disposal. It simply provides analytical categories for examining what is present or – more likely in a poor household – what is absent.

4.3.2.1. Human capital.¹⁶⁷

Human capital was first included in the definition of capital by Adam Smith in the year 1776, who described the capital stock of a nation as including the “inhabitants’ acquired and useful talents because human skills increases wealth for society as well as for individuals.”¹⁶⁸ The concept has a long and complex history, including criticism by Karl Marx.¹⁶⁹ Human capital refers to the skills, knowledge, good health and ability to labour that together enable people to pursue different livelihood strategies. It acts as a building block towards livelihood outcomes. This is indeed, the fundamental asset that is necessary, although it may not be sufficient for positive livelihood outcomes. However, it is more difficult to measure human capital than financial, physical and natural assets. For this reason, human capital is often measured by proxy indicators. For example, an emphasis on the role of education in contributing to economic growth has led to a focus on what can be measured (e.g. enrollment by class level) as proxy estimates of human capital.¹⁷⁰

Human capital is very significant in the context of Mozambique because of its importance in increasing labour productivity in this country, its capacity to contribute to poverty reduction as well as its both being a substitute for and complement to physical

¹⁶⁷ The term ‘capital’, which is frequently being used in this designation has a precise meaning in economics as an asset that can increase (or decrease) in value and provide a stream of goods, services or income.

¹⁶⁸ M. Laroche, “On the Concept and Dimensions of Human Capital in a knowledge-based Economy Context” (1998), found on www.gc.ca/wo/98-01e.pdf.

¹⁶⁹ K. Marx, *Theories of Surplus Values*, Vol. 1, (Moscow: Progress Publishers, 1975).

¹⁷⁰ This can be a contentious assertion. See A. Wolf, *Does Education Matter? Myths About Education and Economic Growth*. (London: Penguin, 2000).

capital.¹⁷¹ However, decades of conflict, war and poverty in Mozambique have shaped the present condition of the country's human capital resource base. Research shows that as a result of the war, more than one million people were killed, up to four million people were displaced, infrastructure and productive assets were virtually destroyed, and the health care and primary education network were disrupted. In the 1990s, Mozambique was ranked the poorest nation on earth.¹⁷² This situation explains the reason for the existing high rate of illiteracy in Mozambique, especially among women. As a result of poverty and AIDS, there are very many street children, especially in the city of Maputo. There are also many people, especially in rural areas, who are disabled because of landmine explosions. In addition, the high rate of morbidity and mortality, stemming from poor health care and chronic malnutrition, have further weakened the base of human capital. The war resulted in the displacement of many people, many of whom became refugees in neighboring countries such as South Africa and Malawi.

Thus, as a result of these different factors, poor people in Mozambique have little human capital to enable them to enhance their livelihoods. Indeed, because of poverty, lack of skills and employment as a result of lack of education, and many other factors, poor people in Mozambique have little choice in their survival strategies but to use whatever resources are at their disposal, even if it means to overexploit them.

4.3.2.2. Social capital

The notion of social capital is even more contentious and difficult to measure than human capital. Although the concept has a long intellectual pedigree, its emergence within the livelihoods framework is largely due to the work of American political scientist Robert Putnam.¹⁷³ For Putnam and the World Bank, the idea of social capital has come to mean "membership in groups" or "voluntary associations," and is seen as a critical condition

¹⁷¹ See the research report on "Human capital, Household Welfare, and Children's Schooling in Mozambique" on <http://www.ifpri.org/pubs/abstract/abstr134.htm>

¹⁷² Bruce Glavovic "Neighbours, Worlds Apart: Livelihood prospectus in Malawi and Mozambique". Quoted from www.devnet.massey.ac.nz/papers/Glavovic Massey University.

¹⁷³ J. Harris, *Depoliticizing Development. The World Bank and Social Capital*. (London: Anthem Press, , 2002).

for “good government.”¹⁷⁴ Social capital refers to the social resources upon which people draw in pursuit of their livelihood objectives. Social capital includes networks, more formal group membership and trust, as well as relationships within the household and the community. According to the World Bank, social capital “refers to the institutions, relationships, and norms that shape the quality and quantity of a society’s social interactions... Social capital is not just the sum of institutions which underpin a society- it is the glue that holds them together.”¹⁷⁵ Social capital may include social networks, formal groups to which people belong and other types of community relationships.

The experience of Mozambique illustrates the role of conflict and civil war, which has resulted in instability with relation to social capital. Indeed, as a result of this situation, people’s social resources weakened, as many people became displaced, others became refugees and their social networks, the formal groups to which people belong, as well as their relationships were destroyed.

Because of this, many people try their best to survive independently using any available means, because of the lack of any social means to depend on. Thus, in the face of many family responsibilities, family members do not have any other way out, but only to profit through what is available for them.

4.3.2.3. Physical capital

Physical capital is generally considered to be the stock of structures and equipment used for production.¹⁷⁶ This refers to the infrastructure (such as transport, shelter, energy, and communications) necessary to support livelihoods and the producer goods (such as tools and equipment) that are required to support livelihoods. The need for physical assets is a core concept in understanding poverty, and, in addition, infrastructure is only an asset in so far as it helps the poor to meet their needs.

¹⁷⁴ Harris, *Depoliticizing Development*.

¹⁷⁵ www.worldbank.org/scapital/whatsc.htm

Years of war, repeated floods, droughts, etc, have taken a severe toll on Mozambique's stock of physical assets. Roads, bridges and villages were destroyed by war; floods and cyclones, etc also destroyed much infrastructure in Mozambique, and these are but a few of the countless examples of the destruction of the Mozambican physical assets. At the household level, drought-related livestock deaths have severely limited the draught power available for cultivation.

All of this damage to infrastructure puts pressure on different affected households as well as the whole community. Indeed, during the time of the floods in Mozambique in 2000, some 700 people were killed and more than a hundred thousand people lost their homes and became displaced. In addition, widespread flooding occurred again in early 2001, this time affecting nearly 40,000 people in the central provinces and resulting in the evacuation of up to 80,000 people who had been left homeless after the Save river had burst its banks. Some of these people who were displaced remained in their newly located zones where they started life afresh and where they depend on the environment for both their housing, as well as their livelihood strategies.

4.3.2.4. Financial capital

This refers to the money or financial resources that people use to sustain their livelihoods, including stocks (cash, savings, bank deposits, livestock, jewelry, and credit) and regular inflows of money from wages, social security, pensions or other government grants as well as other remittances. Conceptualizations of financial capital within the framework have been adopted to reflect the relationship between financial capital and livelihoods. Indeed, this form of capital is the one that is most easily exchanged for other forms of capital, and it can also contribute directly to livelihood outcomes like purchasing food or medicines, or by leveraging social and political influence.

In terms of getting financial capital for poor people's livelihoods, most of the people I interviewed contend that their only possibility of survival is to depend on environmental

¹⁷⁶ See www.worldbank.org

resources. This is in fact the only way they can get access to finances. Delbina from *Polana Canico A* (Maputo) whom I met in the *Merkado Janneta* (market of Janneta in Maputo) selling charcoal, points out that people, because of the lack of other means of survival, need to live even if the environment has to be destroyed.

4.3.2.5. Natural capital

Natural capital is described and defined by the international Institute for Sustainable Development as:

An extension of the economic notion of capital (manufactured means of production) to environmental 'goods and services.' It refers to a stock (e.g. a forest), which produces a flow of goods (e.g. new trees) and services (e.g. carbon sequestration, erosion control, habitat). Natural capital can be divided into renewable and non-renewable; the level of flow of non-renewable resources (e.g. fossil fuels) is determined politically.¹⁷⁷

Natural Capital refers to the natural resources that are available to households and communities in pursuit of their livelihoods. It includes everything from intangible public goods such as the atmosphere, to direct resources such as land, forests, woodlands and water sources (and their quality). Natural capital, even if it has a wider importance, may be particularly important for those who derive all or part of their livelihood from such resources (e.g. farmers, fishermen, gatherers, etc).

Mozambique has more development potential than many African countries. Water resources are relatively plentiful, and the country is traversed by a number of perennial rivers, including the Zambezi, Limpopo, Save, Pubgue, Lurio and Rovuma. In 1988 internal renewable water resources per capita were 5,350 cubic metres per year. One of the country's greatest resources is its abundance of cheap energy- coal reserves, hydroelectric capacity and abundant natural gas reserves.

¹⁷⁷ As defined on www.iisd.org

The coastline stretches over 2,500 km, and the country possesses an abundance of marine resources that are not fully exploited. Mozambique has considerable mineral resources including gold, gemstones, titanium, natural gas, coal and bauxite. These are not currently exploited, but foreign companies are showing a growing interest in prospecting, which can also lead to degradation.

The primary sector of the country's economy is agriculture, contributing about 25 percent of GDP and 60 percent of exports in 1996. "Agriculture is in fact the engine to attain food security, to reduce poverty and, therefore, to build a sound basis for sustainable management of nature resources."¹⁷⁸ Agricultural potential is high, despite frequent droughts. Mozambique is historically a major producer of cash crops.

While Mozambicans lack human, social, physical and financial capital, and even if there is this situation of vulnerability of natural resources, there is a lot of natural capital that poor people can still depend on such as forests, rivers and lakes. Thus, since they also have their own labour, it is not surprising that people choose to use the available natural capital for their survival because of the absence of other assets that people need in order to survive. During my interviews in Mozambique, I realized that the government is aware of this situation, but unable to stop people since there are no other means provided for them for survival. According to Jose Muthlanga for instance, the Ministry of Agriculture provides a license valid for four months to those who want to buy charcoal for commercial purposes.¹⁷⁹

4.3.3. Policies, institutions and processes

The third element of the Framework is called policies, institutions and processes. All individuals and households live within, shape and are shaped by a set of informal

¹⁷⁸ Menete, "The Need for Collaborative Research on Environment, Soil, and Water Management for Sustainable Agriculture".(Website).

¹⁷⁹ Interview by Anastase Nzabilinda with Jose Muthlanga in Boane on Wednesday 15 December 2004.

practices, norms and rules that constitute the institutional environment.¹⁸⁰ Indeed, de Gruchy refers to them as “Institutional structures, institutions, formations and contracts that are set in place to regulate social and communal life.”¹⁸¹ These influencing factors play a key role in mediating access to resources, shaping the context of vulnerability, and setting opportunities or constraints to pursuing various livelihood strategies. This is explained by the fact that the conversion of livelihood assets into livelihood strategies is usually influenced by many factors such as laws, policies and culture and the bodies that develop, enforce or support those processes. Thus, policies, institutions and processes may influence access to asset types and to strategies for combining those assets or may shape the terms of exchange between capital types, and the (economic) returns on a given strategy (see figure 2).

Considering the framework, it is evident that these policies, institutions and processes can influence the household either positively or negatively. In Mozambique, regulation and protection of the environment comes mainly under the jurisdiction of the Ministry for Environmental Co-ordination (MICOA).¹⁸² Some of these policies, institutions and processes, as well as some cultural laws in some cases, are among many other issues that affect both people and the environment in many ways.

4.3.3.1. Adjustment to poverty situation

Because of a long history of poverty, people in Mozambique have been trying to adjust their lives and livelihoods to the poverty situation. On the part of the government, policies have been drafted and implemented focusing on the poverty situation of the country. In this case, the environmental issues tend to be neglected because most efforts have been concentrated on economic issues because people’s livelihoods are usually at risk as a result of the poverty situation. During all my interviews, people were emphasizing that they are poor and the only way for them to survive is to depend on the

¹⁸⁰ D. North, *Institutional Change and Economic Performance*. (Cambridge: Cambridge University Press, 1990), p. 4. He makes the distinction between institutions and organizations, with institutions as “rules of game” and organizations as groups of individuals.

¹⁸¹ See de Gruchy. “The Contribution of Universities to Sustainable Livelihoods”. p. 9.

environment. Some of the officials who are concerned about the environment usually lack the means to do their work, and, as a result, they often accept bribes, and things get worse. For instance, I was informed that people usually kill animals in the National Parks or Reserves without the guards' notice; others corrupt those who are in charge of the reserves and get access to animals for hunting to get meat for family or commercial consumption.¹⁸³ Even the government is aware that people survive through the environment; that is why they tend to be less strict towards any kind of environmental abuse. In fact, as Eurico strongly contended during my interview in Matutuine, "The law is there concerning the environment protection and conservation, but there is a lack of regulations"¹⁸⁴ and this is mainly as a result of the poverty situation.

4.3.3.2. Market economies versus environmental policies

Ranking among the world's poorest and least developed countries, Mozambique's capital and financial account is still dominated by capital grants, official loans and debt relief credits; a minor portion of the current account deficit has been financed by private foreign direct investment flows in recent years despite the fact that large infrastructure projects like Mozal have had a large FDI financing component. In addition, FDI accounted for US\$250 million of financing in 2001, below the peak of almost US\$400 million in 1999, but still well above the levels of the mid-1990s before the megaprojects began to come to fruition. In 2001, net borrowing activity in the financial account actually resulted in an outflow of funds as government borrowing resulted in more repayments of principal than disbursement of new loans. That situation left Mozambique's overall balance of payments in deficit requiring exceptional financing in excess of US\$400 million.¹⁸⁵

Agriculture, fishery and tourism characterize the stock of financial capital in Mozambique. Much of the country's wealth derives from agricultural activities of cashew

¹⁸² <http://biz.yahoo.com/afc/mz.html>

¹⁸³ Vincent Americo. Interview by Anastase Nzabilinda in Bella-Vista on Thursday 16 December 2004.

¹⁸⁴ Eurico. Interview by Anastase Nzabilinda in Bella-vista (Matutuine) on Thursday 16 December 2004.

¹⁸⁵ <http://biz.yahoo.com/afc/mz.html>

nuts, rice, etc. Due to the environmental degradation however, this production of financial capital is being undermined. In addition, different factors, such as floods, droughts, etc., undermine financial capital, as well as the livelihoods of people in Mozambique.

In this context, the country of Mozambique has been moving to a market economy which lacks environmental policies and regulations, and with an increasingly selective role for the public sector as is the case in many African countries.¹⁸⁶ In parallel, Mozambique, like many other African countries, is also pursuing economic adjustment to redress macroeconomic distortions. The World Bank maintains that this kind of evolution promotes economic growth and holds great potential for improving environmental management, provided that appropriate environmental policies and regulations, including market-based instruments, are in place and enforced. However, this is not yet the case in Mozambique, a country stricken by wars, poverty, droughts, floods, cyclones, AIDS, etc.; and is unlikely to be the case as the free market generally seeks to do away with regulations.

4.3.3.3. Political breakdown

In addition to poverty, and the efforts to move to a market economy, Mozambique has also been experiencing political transition. According to the World Bank's experience, the change to more open societies has a positive impact on the environment because, in countries progressing towards political pluralism, decision-making becomes decentralized and people are empowered in managing their natural resources. On the contrary, countries suffering from political breakdown and civil strife suffer high environmental costs.¹⁸⁷ The country has been suffering from political breakdown as well as many political struggles and misunderstandings between the leading party FRELIMO and its main opposition party, the RENAMO, and thus it has been difficult to empower people in managing their natural resources.

¹⁸⁶ World Bank, *Toward Environmental Sustained Development in Sub-Saharan Africa*. p. 2.

¹⁸⁷ World Bank, *Toward Environmental Sustained Development in Sub-Saharan Africa*. p. 2.

4.3.3.4. Urbanization and the urban environment

Uncontrolled urbanization is considered the most recent contributor to environmental degradation in Mozambique. Urban poverty, increased occurrence of diseases, inadequate sanitation and services, poor living conditions, pollution, and a lack of administrative capacity to cope with the basic needs of the ever-growing urban population are the most visible aspects. During the period of war and drought, the rural-urban migration led to the rapid urbanization of the country. In many cities, that situation resulted in unprecedented demands for specific resources and services, and substantial pressure on existing urban infrastructure. In this regard, the urban population roughly tripled in ten years and local governments were unable to meet the increasing demand for sanitation, water, supplies, and garbage collection. Maputo, Beira and Chimoio, and other provincial capitals are the cities in which urban environmental degradation has now transcended the urban limits to affect rural land, coastal ecosystems, and water resources. The above conditions have resulted in widespread water-borne diseases in Mozambique such as cholera, typhoid, diarrhea, as the major causes of mortality in the country.¹⁸⁸

4.3.4. Fourth element: livelihood strategies

These are actions taken by household members to improve well-being. Within the vulnerability context, and given the policies, institutions and processes that impact upon their lives, people make use of their asset portfolio to pursue livelihood strategies. These are, the range of activities undertaken to combine the assets available in order to best achieve desirable livelihood outcomes. Three key groups of livelihood strategies available to rural households are agriculture-intensification / extensification, livelihood diversification and migration. Thus, poor households may adopt one or any of these options to maximize the use of their assets in the context in which they live. In addition, the decision to adopt different strategies may also be shaped by the policy context.

¹⁸⁸ Center for Environmental Information and Knowledge in Africa (CEIKA) “Best Practices of Environmental Information System in Mozambique”. (Website).

Mozambique remains one of the poorest countries, with about 70 percent of its population living in poverty. According to statistics, about 80 percent of the country's 17 million people live in rural areas subsisting off the land,¹⁸⁹ and this is where their livelihood strategies are undertaken. As we have seen, due to various vulnerabilities that people in Mozambique are experiencing, because of the lack of necessary assets to live on, as well as policies that try to deal with the poverty situation rather than focus on the environment, people in their daily lives adopt strategies which undermine the environment. For instance, during my interview with Antonio in Catuane in Matutuine District¹⁹⁰, he told me that after he left his family in Nampula Province, he decided to come to Maputo to look for a job. Because he could not get a job to sustain his family, and as no one was there to help, Antonio decided to move and go to live in Matutuine, and since then he and his family have been surviving through making and selling charcoal.¹⁹¹ In fact, as a result of poverty and many other factors, many people depend on environmental resources for their livelihoods, and by and large, these are being exploited in unsustainable ways. Indeed, as you travel in Mozambique, you observe significant deforestation around cities and towns and along transport corridors, mainly due to people clearing forests for subsistence and commercial agriculture. In southern and central Mozambique, I have been observing bushfires set for land clearing and hunting, and people collecting wood for fuel and charcoal.

When travelling on public roads, especially in rural areas, you also see a lot of charcoal and firewood exposed on the roadside. In some rural areas, they depend entirely on this resource for their survival. People cut trees and make a living out of them. In some places in fact, there are no longer any trees standing, they have become deserts. People also hunt animals and get meat to eat in their homes and to sell for other family expenses. In some cases, as in Matutuine, they even burn grass in order to make sure that there is no animal left. Many people in Mozambique use their land in an unsustainable manner and the land tends to be unproductive for future use. All of these ways lead to environmental

¹⁸⁹ Glavovic "Neighbours, Worlds Apart: Livelihood prospectus in Malawi and Mozambique". (Website)

¹⁹⁰ More detail in chapter two regarding environmental degradation in Matutuine as my fieldwork experience.

¹⁹¹ Interview by Anastase Nzabilinda with Antonio Paulo in Catuane on Wednesday 15th December 2004.

degradation, and in fact, people do not care because they are more concerned about their lives than the environment.

In this regard, considering my interview with Delbina, she told me that the only way for her to gain financial resources needed for her family is through selling charcoal that she gets from Catuane.¹⁹² She believes that:

People need to live by what is available to them. They cut trees, when they finish, they go on other side... If all trees finish, I do not know what will happen...What can we do since there is no other means to survive? No food, children at school, how are we going to pay for them? No job, how are we going to live? We don't care for the future. We need to live now.¹⁹³

People gain a lot of charcoal and benefit a lot from this business. I was told during my interview for instance, that a sack of charcoal costs around 40,000 Mt in Matutuine or Magude District in Maputo Province, but the same sack is sold around 230,000 Mt in the city of Maputo. Therefore, because of the high cost of electricity and gas used for cooking, most of the people in the city use charcoal for their energy. In addition, because of the benefits of those who sell charcoal, as well as the high demand, making charcoal promotes competition, as people move from one zone to another cutting all the trees to get charcoal. As a result of this, I have observed many areas in Mozambique becoming like a desert.

In addition, as a result of wars, floods, droughts, and famines, people have been leaving their homes and relocating themselves in other places. This displacement results in different kinds of environmental degradation as hundreds of thousands of people stay in one area trying to gain their livelihoods through the use of available resources.

¹⁹² Catuane is the zone in Matutuine District well known because it supplies the charcoal to most of the parts of Maputo city.

¹⁹³Delbina. Interview by Anastase Nzabilinda with Dona Delbina at Mercado Janetta (Maputo) on Tuesday 14 December 2004.

It was also remarked that there was an increased pressure on natural resources as people returned to lands, abandoned during the armed conflict, to resume subsistence livelihoods.¹⁹⁴

4.3.5. Livelihood outcomes

The result of pursuing a livelihood strategy is a range of livelihood outcomes, and these outcomes can improve or erode the household assets. The livelihood outcomes therefore, being the result of the livelihood strategies, may produce more income, such as cash or valuable goods that benefit the household in different ways. However, the outcomes of various livelihood strategies may also be negative, and may serve to undermine the very resources as well as relationships. In resource-poor settings, a key livelihood outcome is the level of poverty. According to Chambers and Conway thus, a livelihood is sustainable when it can “cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation.”¹⁹⁵

The following section discusses both the positive and negative outcomes from the livelihood strategies of the people in Mozambique, which is linked to environmental degradation.

4.3.5.1. Positive outcomes

As we have been discussing, many people in Mozambique, especially in the District of Matutuine depend on the environment in different ways to survive. By doing so, people manage to get money to buy food, to pay for their children’s school fees, to pay for transport or to pay for medication when they are sick. Most of the people when asked as to why they take from the environment, will tell you that this is the only way out and there is no other way to survive if they do not do what they do. Thus, it is clear that there

¹⁹⁴ Glavovic “Neighbours, Worlds Apart: Livelihood prospects in Malawi and Mozambique”. (Website).

¹⁹⁵ Chambers and Conway, Sustainable Rural Livelihoods, p. 7.

is a positive livelihood outcome from this strategy of using what is available from the environment. This is therefore beneficial for the present generation, but not necessarily for the future generation since most of the people who depend on the environment were not taught how to care for it.

4.3.5.2. Negative outcomes

(i) Danger to the future generation

Cutting trees for getting charcoal for personal or commercial use, or burning the bush to extend the land for agriculture may have a present benefit, but this practice may not necessarily be for the benefit of future generations. Land degradation may also be the most significant environmental problem which occurs in many parts of Mozambique. This is usually driven by unsustainable farming practices. With regard to water degradation, Mozambique's 2,700 km coastline also provides access to a range of coastal and marine resources, many of which are under increasing pressure from commercial fishing and artisanal fishers (mainly around Maputo and Beira). People should act responsibly, bearing in mind that even the future generation will need to be dependent upon the environment. Thus, people have to be responsible, so that, as they cut trees, they should feel the necessity of planting more trees, otherwise, the future generation will not survive in the desert created by their fore-fathers. However, tree planting is not undertaken.

(ii) Health problems

As people depend on the environment for their survival, environmental degradation results from these actions, and this has an enormous impact on people's health. Indeed, the World Health Organization's (WHO) Burden of Disease reports show that rates of respiratory infections, diarrhea and malaria account for almost 20% of deaths in developing countries with high mortality rates. All the diseases are associated with

environmental factors.¹⁹⁶ Air pollution is a very much localized problem in Mozambique, mainly associated with uncontrolled industrial activities and solid waste burning in urban centers throughout the country. Uncontrolled bush fires and mining operations also create air pollution in some rural areas. In this regard, attention needs to be given to respiratory and related health problems arising from the use of wood fuel and charcoal for domestic cooking and heating. Furthermore, in Matutuine, I was told that one of the dangers of deforestation and bush burning is the disappearance of the trees and plants for medication. Indeed, since many people in the district depend on the roots and leaves of certain plants and trees, cutting and burning them results in the lack of medication.¹⁹⁷ This situation greatly affects people's health in this poor district where people do not have access to well equipped clinics, nor enough money to travel all the way to the Central Hospital in Maputo for treatment.

(iii) No tree, no oxygen, no fruit, no drink

Another concern that was expressed by people in Matutuine was that if people continue to cut trees until they run out of them, there will be no oxygen which is a necessity for life. As Funzanto maintains, "The air comes from trees, but people do not know... During the time of cashew nut, we have food, drinks, etc, but people ignore that and keep on cutting all trees..."¹⁹⁸

(iv) Deforestation disturbs the ecosystem balance

Cutting trees causes deforestation which disturbs the eco-system balance. Indeed, since forests are a part of a hydrological cycle, their absence interferes with it, and this affects rain as well as the ground water system. In addition, cutting trees interferes with the carbon cycle as carbon will be present in the atmosphere without trees to consume it, and carbon dioxide's presence in the atmosphere becomes an agent of global warming. As we can see, global warming is becoming a reality in Southern Africa, particularly in

¹⁹⁶ World Bank "Unhealthy Environment, Unhealthy People." Information from www.worldbank.org.

¹⁹⁷ Vincente Americo Funzanto, same interview.

Mozambique. Indeed, experts believe that the recent consecutive floods in Mozambique that killed about 700 people and made over 80 000 people homeless, was associated with the continuing rising of the earth's temperature due to carbon dioxide emissions.¹⁹⁹

4.4. The missing link

Seeing the situation of environmental degradation in Mozambique which results from the livelihood strategies of the people in this country, the question that one needs to ask is, "why are people not able to see this link"? According to many interviews I conducted with different people from different provinces throughout the country, especially people from Matutuine District, there are two main reasons why this happens:

4.4.1. Poverty as the main cause of environmental degradation

The link between deepening poverty and environmental degradation confronts anyone living in a developing country on a daily basis.²⁰⁰ The UNDP defines human poverty as the denial or deprivation of opportunities and choices that would enable an individual 'to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self respect of others.'²⁰¹ According to the World Bank Report 2000/2001, "1.2 billion of the world's 6 billion people live on less than \$ 1 per day, and 2.8 billion people, or almost half of the world's population, live on less than \$2 per day. In 1998, at least 40 percent of the population in South Asia and more than 46 percent in sub-Saharan Africa were living on less than \$1 per day."²⁰²

Africa, which is the poorest region of the world, has, according to El-Ashry

¹⁹⁸ Vincente Americo Fonzanto, same interview.

¹⁹⁹ See Chris Tham, "The Response of the Church to Environmental Degradation: Some Insights from India" in Andrew Warmback (ed), *Bulletin for Contextual Theology in Africa*. Vol 8, No 2& 3; April & August 2002, p. 94

²⁰⁰ Akin L. Mabogunje, "Poverty and environmental degradation: Challenges within the global economy", 2002. From: www.findarticles.com

²⁰¹ Mabogunje, "Poverty and environmental degradation". (Website).

²⁰² Mabogunje, "Poverty and environmental degradation". (Website).

The largest share of people living on less than US \$ 1 per day. Almost 40% of the people in Africa live below the poverty line. At least one third of Africa's population is under nourished and that number is also growing. Africa is the only region in the world where poverty is projected to increase during this century if adequate measures are not urgently taken. Of the 48 countries on the UNDP list of Least Developed countries, 45 are in Africa.²⁰³

This relationship between poverty and environment is characterized as a 'vicious circle' or a 'downward spiral'. "The poor often rely on the environment resources for their livelihood. At the same time, they are affected by the way others use environmental resources."²⁰⁴ Thus, environmental degradation is regarded as both the cause as well as the consequence of poverty. "Poverty is both a cause and a result of environmental degradation."²⁰⁵ It is maintained that:

Poverty is a factor in accelerating environmental degradation, since the poor, with shorter time horizons and usually less secure access to natural resources, are unable and often unwilling to invest in natural resources management (for example, soil conservation and fertilizers). In addition, poor people are often the most exposed to environmental damage, because they cannot afford, for example, to purchase safe water or to live in a neighborhood that is less polluted.²⁰⁶

As I have been mentioning throughout this chapter, poverty is the main cause of environmental degradation in Mozambique, especially in this district of Matutuine. This poverty is increased by the fact that many people are unemployed and thus see themselves needing to try whatever means they can to survive. Most of the people I interviewed maintained that whatever they do in exploiting the environment, they do it for survival purposes. However, even if people are degrading the environment in order to survive, I also noticed that there is a lack of understanding with regard to environmental issues.

²⁰³ Message from Mohamed T. El-Ashry to the AMCEN special session on NEPAD Environment ACTION Plan. (Website).

²⁰⁴ See International Monetary Fund, "Zambian Poverty Reduction Strategic Paper", March 2002. <http://www.imf.org/External/NP/prsp/2002/zmb/01/>, p. 118. Accessed in November 15, 2004.

²⁰⁵ World Bank, *Toward Environmentally Sustainable Development in Sub-Saharan Africa*. p. 2.

²⁰⁶ See Stephen D Mink, *Poverty, Population and the Environment*. World Bank Discussion Paper 189. Washington D.C., 1993.

See also World Bank, *Poverty Reduction Handbook*. Washington, D.C., 1992.

4.4.2. There is a lack of understanding regarding environmental issues

It is important to note that many people in Africa may not necessarily be aware of environmental issues and how to relate to the environment in a way that will do little harm to it. I realized during my interviews that many people lack an understanding of environmental issues, and I realized this as people responded when I asked them why we do not care for the environment or what happens when our environment goes wrong. Thus people are not inherently anti-environment; they are often simply acting out of ignorance.

Thus the overwhelming poverty and the need for survival, plus a lack of environmental awareness combine to hide the link between poverty and the environment.

4.5. Conclusion

In this chapter we considered the environment and livelihood issues in the context of Mozambique. The Sustainable Livelihood Approach was introduced and applied to the context of Mozambique, so that we could analyze the connections between poverty and the environment. The chapter also discussed the inability to see the link between environmental degradation and livelihood strategies, and in this case poverty is highlighted as the main factor causing environmental degradation. I also noted the lack of understanding regarding environmental issues. As we turn now to ask what the church in Mozambique may contribute to the situation, we need to first take stock of the theological resources that can empower it to be an agent for positive change for the environment.

Chapter Five

THEOLOGICAL RESOURCES FOR CARING FOR THE ENVIRONMENT

5.0. Introduction

The Biblical teachings on the environment focus on the concepts of the stewardship of creation: “Environment responsibility lies at the center of Christian faith, requiring every person who professes Christ to be faithful in their care and keeping of creation.”²⁰⁷

However as we have seen, the environment in Africa, especially in the country of Mozambique, is not treated as the Bible teaches, and this affects the lives of both the people and other living creatures. Issues like heavy reliance on natural capital, extreme poverty along with very fast population growth, urbanization and migration, and cultural and religious beliefs, are all causes of the environmental crisis in the continent. These lead to land degradation, water and air pollution as well as deforestation and these affect people as well as other creatures.

This chapter focuses on the theological reflection on the issues regarding environmental degradation and livelihoods. At the heart of this theological reflection is the issue of the stewardship of creation which is God’s command to human beings, a commission that humankind received right from the beginning of creation itself.

5.1. Religion and the environment

The relationship between religion and the environment needs clear attention. On the one hand, the failure of religions with regard to environmental issues has been noticed. It is indeed believed that religions have not always achieved wholeness, even though they may be strong shapers of societies and the environment. The importance of religion is

²⁰⁷ Calvin B DeWitt (ed), *The Environment & the Christian*. (Grand Rapids: Baker Book House, 1991), p. 155.

evidenced in the claim of Lynn White Jr. that due to its power, the Judeo- Christian religion has been the root of our ecological crisis.²⁰⁸

On the other hand, it is strongly acknowledged that “religion of high quality restores the ability of people and society to master themselves, since it uncovers and revitalizes beliefs that bring respect for God and creation.”²⁰⁹ It is believed that:

Religion and faith have an important role to play in ensuring that the environmental degradation in society is lessened if not stopped completely. Major world religions like Christianity, Islam, Hinduism, and Buddhism share a religious belief that humankind is a caretaker of the environment that was created by God. This belief endorses and strengthens the role of the faith community in every society with regard to being the watchdogs of their environment. There are also spiritual and moral values of Christians, Moslems, Hindus, and Buddhists that discourage destruction of the environment by humanity.²¹⁰

With this in mind, there is therefore a need to consider how African religions address environmental issues and in which ways they can make a difference in promoting environmental care.

With regard to Christianity, we read throughout the Bible how the Word of God addresses issues regarding the environment, an indication that Biblical claims regarding God’s creation can have a positive impact on how people should treat their environment. Evangelical Christianity, as DeWitt maintains, claims that God owns all things and that God is our model for what we must do. It defines our relationship to the world as one of stewardship, or caring for something (the creation) on behalf of another (God). Thus, “As ‘all the mighty acts of God- Father, Son, and Holy Spirit,’ so our stewardship is on behalf of the Triune God.”²¹¹ As people who are convinced by biblical teachings on creation, we should therefore believe that the Creator’s care for the creatures and creations should

²⁰⁸DeWitt, *Caring for Creation*. p. 25.

²⁰⁹ DeWitt, *Caring for Creation*. p. 25.

²¹⁰ Tham, “The Response of the Church to Environmental Degradation”, p. 93.

²¹¹ DeWitt, *Caring for Creation*. p. 30.

be reflected in our own care and keeping, and speaking out on behalf of God's creation.²¹²

5.2. The Stewardship of creation

The theological framework that guides this research is centered on the stewardship of creation: which is God's command to human beings, a commission they received right from the beginning of creation itself. One way to sum this up would be to reword the Great commandment as 'Love your neighbour and nature, as yourself'. However, all ecological crises today are basically the results of the violation of this commandment.²¹³ Thus, the concept of creation is a biblical issue and it needs to be taken seriously.

Calvin DeWitt has highlighted four fundamental ecological principles that can readily be discussed within the biblical narrative.²¹⁴ Firstly, the 'Earth-keeping principle' implies humanities' responsibility in keeping and sustaining the Creator's creation. Secondly, the 'Sabbath principle' involves the creation being allowed to recover from human use of its resources. The third concept consists of the 'fruitfulness principle' in which the fecundity of the creation is to be enjoyed, not destroyed. Fourthly, 'fulfillment and limits principle', involving the limits set to humanity's role within creation, with boundaries set in place, which must be respected.²¹⁵

However, this urgent need of stewardship of creation has been usually misunderstood in our Christian context. Lynn White maintains that Christianity was to blame for the emerging ecological crisis on account of its using the concept of the 'image of God', found in the Genesis creation account (Gen.1: 26-27), as a pretext for justifying human exploitation of the world resources. Genesis, according to White, therefore, legitimated the notion of human domination over the creation, hence leading to its exploitation.²¹⁶

²¹² DeWitt, *Caring for Creation*, (1998). p. 23.

²¹³ Nehring, *Ecology, a Theological response*. p.30.

²¹⁴ Calvin B. DeWitt "Creation's environmental challenge to evangelical Christianity" in R J Berry (ed) 2000. *The Care of Creation*. Leicester: Inter-Varsity Press. pp. 60-73.

²¹⁵ DeWitt, "Creation's environmental challenge", (2000), pp. 60-73.

²¹⁶ White, "The historical roots of our ecologic crisis". pp. 31-42

Thus, despite its historical and theological superficiality, White's paper, as Berry comments, had a profound impact on the shaping of popular scientific attitudes towards Christianity in particular, and religion in general.²¹⁷

In considering the theological framework concerning the stewardship of creation emphasized in this study, there is a confirmation that a closer reading of the Genesis text shows that such themes as 'humanity as the steward of creation' and 'humanity as the partner of God' are indicated by the text, rather than that of 'humanity as the Lord of creation.'²¹⁸ Indeed, this study contends that, far from being the enemy of ecology, the theological doctrine of creation affirms the importance of human responsibility towards the environment. The biblical concept of domination was to be understood specifically in terms of stewardship,²¹⁹ for creation is not the possession of humanity; it is something which is to be seen as entrusted to humanity, who are responsible for its safekeeping and tending.²²⁰

5.3. Human beings as the stewards and the caretakers of God's earth

The earth and everything in it belongs to God and reveals him who designed that human beings should work as good stewards. Human beings are indeed to maintain the creation order.

5.3.1. The earth and everything in it belong to God and reveal him

The earth and everything in it are God's, and creation reveals the Creator. They should therefore be treated appropriately and with respect, i.e. stewardship. This involves the Sabbath which reminds us of the biblical view of justice and redemption of the world,

²¹⁷ Berry, *Care of Creation*. p. 87.

²¹⁸ Cf. H.D. Preuss, *Old Testament Theology*, (Louisville, KY: John Knox Press, 1995), pp. 114-117.

²¹⁹ See D.J.Hall, *Imaging God: Dominion as Stewardship*, (Grand Rapids:MI: Eerdmans, 1986).

²²⁰ See also J. Nash, *Loving Nature: Ecological Integrity and Christian Responsibility*, (Nashville, TN: Abingdon, 1992).

and as Wilkinson points out, God calls us to work toward the Sabbath in which both earth and world rejoice before the Creator.²²¹

With a future hope that God will renew the whole creation, that He will establish the new heaven and new earth, that our body will be restored for eternal purposes, Christians should, with loving care, be making every effort to treat it fairly, as God intends it.

5.3.2. God designed human beings to work as good stewards

Human beings are created in God's image to rule and to act as God's representatives on Earth (see Gen. 1:12, 18, 21, 25-31). Walvoord and Zuck explain that the image was only given to humans to share in God's nature and share the same attributes: life, personality, truth, wisdom, love, holiness and justice²²². As a result, they became responsible for what God has created. God said, "Be fruitful, multiply, fill the earth, subdue it and have dominion over the fish (Gen. 1: 28). God therefore designed human beings to work as good stewards of one another and all other creation, seeking his will above all else. As Wilkinson puts it clearly, humans are called to be stewards, or guardians, over creation. This stewardship "implies caring management, not self-exploitation, and it involves concern for the present and the future as well as self."²²³

Stewardship also involves participation and creativity in God's work. Human beings are to tend and keep what was entrusted to them. Humans who are also creative, invent technologies which, when misused, harm God's creation in Africa, instead of using them for protecting and maintaining the environment. Gordon Wenham comments that technology is not to be blamed but only technology in the service of profit and money making.²²⁴

²²¹ Loren Wilkinson (ed), *Earth Keeping in the '90s*. (Grand Rapids: WB Eerdmans, 1980), p. 337.

²²² John Walvoord and Roy Zuck. *The Bible Knowledge Commentary* (USA: Victor Books, 1985), p. 29.

²²³ John Weaver, *Earth shaping earth keeping: A Doctrine of Creation*. (London: Lynx, 1999), p. 127.

²²⁴ Gordon Wenham, *The Bible and the Environment*. From http://www.jri.org.uk/brief/bible_wenham.htm Processed on 2/23/2004.

In addition, human beings are given dominion over other creatures. This dominion should not be abused or lead them to over-exploit other creatures. Instead, human beings should become the earth's caretakers, for, "The earth is for the Lord and everything in it" (see Psalm 24:1). This dominion goes hand in hand with stewardship. Adam and Eve were put in the Garden of Eden to till it and to keep it. (Gen. 2:4-23).

Furthermore, human beings were given authority to name the animals (Gen. 2:20), a responsibility that should be regarded as the commission to human beings to protect and to provide for animals. In Africa, animals are not treated well: animal hunting has become a game for human pleasure, birds and other animals are being killed innocently. Water is polluted and this affects all animals because they live in and by it. The polluted air also endangers the lives of animals, human beings and nature. Africans should protect animals and avoid killing them unnecessarily.

This challenges us people in Africa, as we should avoid any action that leads to environmental degradation; instead, we should protect it from any harm. We are today, like Noah: we are presented with a threat to the earth's life and we are given the task of preserving it.²²⁵ "Human dominion over the earth", as DeWitt contends therefore, "must be a service-oriented, care-taking stewardship,"²²⁶ not exploitation with a selfish ambition. According to David N Field's argument in this regard, first, this stewardship is rooted in the divine commission to men and women: to fill the earth and subdue it (Gen. 1:28). Secondly, Christ commissioned all his followers to become 'the salt' and 'the light of the world', and this must be done through human caring and protecting the environment.²²⁷ Thirdly, Christ is the Lord of creation (Cf. John 1:3), it is thus both a privilege and a responsibility for his followers to reflect and to honour God in our taking care of his world. Honouring our Creator in our words is in contradiction to destroying his work in our deeds! Fourthly, God's people are called to be co-workers with God in

²²⁵ Wilkinson, *Earth Keeping in the '90s*. p. 44.

²²⁶ De Witt, *Caring for Creation*, (1998). p. 8.

²²⁷ Ddungu, "Environment protection". p. 243.

his mission, thus following Christ into the world in all its brokenness, distortion and darkness in order to transform it.²²⁸

5.3.3. Human beings are to maintain the creation order

The Bible tells us that God created every thing in order and it was good.²²⁹ According to Loader, “the existence of the world means not chaos, but order and if humans wish to exist in this order they should integrate into the creation order.”²³⁰ God’s creation is good and meaningful, therefore nobody has to undermine or destroy its beauty that has to be maintained. For this reason, people in Africa should not throw rubbish, papers, plastics, tins, etc. just anywhere. They should be kept somewhere in order to maintain the cleanliness and order of God’s creation.

Sin destroyed the harmony in God’s creation. Fihavango maintains, “people act irresponsibly toward the Creator and hence also toward His creation. As the outcome of this, the world suffers from ecological disaster.”²³¹ As a result of human sin, creation was cursed but Christ has come to redeem it.

5.4. Christians are to promote life through caring for the environment

Environment has a link to life.²³² Without the energy of the sun, without carbon, calcium, etc. no life is possible. Wilkinson highlights that apart from the energy of the sun and atom, and our own ability to apply or use them, all our civilization, and human life itself would cease.²³³

The environment supplies food, well-being and development. Without land, Africans cannot feed themselves. And also, as believes Sindima, “Life achieves fullness when

²²⁸ David N Field. “The Gospel, The church and The Earth: Reflections on an Ecological Ecclesiology” in *The Journal of Theology for Southern Africa* 111 (November 2001), pp. 78.

²²⁹ Loader. *Image and Order*. p. 2.

²³⁰ Loader. *Image and Order*. p. 18.

²³¹ Fihavango, “Quest for Ecotheology in a situation of Ecological Disaster”. p. 95.

²³² See section 2.1. for more information

²³³ Wilkinson, *Earth Keeping in the '90s*. p. 69.

humans are richly connected to each other as people, to other creatures, and to the earth itself.”²³⁴ Thus, it is the purpose and responsibility for Christians in Africa to be concerned for the environment through which both humans and non-humans obtain resources that life depends on. We also need to take care of our environment in order to share the resources we find in it with the future generations.

5.5. Jesus and environment

This section highlights redemption through Christ and reconciliation through Jesus, the environmentalist.

5.5.1. Redemption through Christ

The Bible focuses on Jesus as the creator and redeemer. “In the beginning was the Word, and the Word was with God, and the Word was God. All things were made through Him...” (John 1: 1-18). Jesus came to save the world from its destruction and restore life in the world. He came to give life in its fullness (John 10: 10). This abundant life is for all creatures because the salvation brought by Christ is for the whole creation. This opposes any kind of human activity that harms the life of any creature. So any environmental misuse works against Christ and His redemptive plan.

5. 5. 2. Reconciliation through Christ

As Paul contends, “God reconciled us with Himself through Christ” (2 Cor. 5:18-19). Thus, through Him, humanity is reconciled to God and also renewed. Therefore, humans are required to obey God through the way they treat His creation. In addition, because of this renewed relationship, humans are to love and respect each other. Any environmental degradation should be avoided.

²³⁴ Harvey Sindima. “Community of Life: Ecological Theology in African Perspective”, in BC Birch, W Eakin and BJ McDaniel, *Liberating Life*, p. 143.

5. 5. 3. Jesus as an environmentalist

Throughout His ministry, Jesus taught people to be good stewards of God's creation. He challenged them to act as stewards and earth's caretakers. In His teaching through parables,²³⁵ Jesus wanted His listeners to be both responsible for and accountable towards God's creation.²³⁶ This shows that Jesus was interacting with the gift of creation. His example of God who feeds the birds and clothes the grass of the field (Matt. 6: 26:30) encourages people to love and care for God's creation. Therefore the good example of Jesus who lived a life that did not harm nature but respected the environment should be learnt.²³⁷

5.6. Concern for livelihoods

In this chapter we have been looking at issues regarding the environment and the Bible. Throughout this research, the environment is linked to people's livelihoods, as people utilize environmental resources in their daily livelihood strategies. In some cases, some people act selfishly, taking advantage of God's work in order to enrich themselves, even if it harms others and the environment. In this regard, God is concerned about the environment: The theology of creation is rooted in the divine commission to man and woman to till the earth and perfect it (Genesis 1:28). God calls us to see that justice is done on earth (cf. Isaiah 42:5, 6). To the extreme, the book of Isaiah warns of the earth's devastation due to the ignoring and breaking of God's law (24: 4-13), and Isaiah points out the consequences of human selfishness and greed (5:8-10). However, we must not give the impression that the environment is more important than people and livelihoods.

Clearly the Bible is concerned also about life and livelihoods, and there are many, many texts about poverty, justice, peace and equality. Considering for instance Jesus' mission in this world, we realize that life is at the center of his coming, as Mwombeki argues,

²³⁵See Gitau, *The environmental Crisis*, p. 73 for the details of the parables as taught by Jesus.

²³⁶Gitau, *The environmental Crisis*. p. 73.

²³⁷Gitau, *The environmental Crisis*. p. 76.

“Christ is the life, and therefore the source of life of all creation...”²³⁸ The biblical concern about livelihoods consists in achieving a good life and well-being which is what shalom is all about: “The ultimate intention of God for the world as a whole is the comprehensive well-being of all his creatures. In the Old Testament, this goal is called *shalom*, in the New Testament it is called the ‘age to come’, or the ‘kingdom of God’”²³⁹ Indeed, shalom is the “abundant life that Jesus speaks of (John 10:10). It means enjoying relationship with God, with neighbors and strangers, and with nature: That is: “Dwelling at peace with God, with self, with fellows, and with nature”²⁴⁰. The biblical vision of shalom is “a vision of what ought to be and a call to transform a society.”²⁴¹ This involves active opposition to oppression and any kind of exploitation²⁴² as shalom is linked to justice and righteousness (Isaiah 60: 17): where there is justice and righteousness there is no oppression and “when God’s deliverance comes, when justice is done, shalom results.”²⁴³ In addition, the vision of shalom also addresses poverty and looks for alternatives to end it for a quality life. Yoder acknowledges poverty in our society being a result of the increase of individual wealth for some at the cost of poverty for many.²⁴⁴ But the good news is that “God is committed to shalom. Jesus came to bring shalom. In shalom there is no poverty.”²⁴⁵

However, Jesus’ parable of the sheep and the goats offers a vision of God’s final judgment on those who did not seek shalom, those who have and have not been faithful in caring for the livelihoods of others: “Depart from Me...for I was hungry and you gave me no food; I was thirsty and you gave me no drink; I was a stranger and you did not take me in, naked and you did not cloth me, sick and in prison and you did not visit me.” (Matthew 25: 41- 43).

²³⁸Mwombeki, “Ecology in the New Testament”. p. 102.

²³⁹Nürberger, *Prosperity, Poverty & Pollution*. p. 164.

²⁴⁰Bryant Myers, *Walking with the poor*. (New York: Orbis books, 1999), p. 51.

²⁴¹Perry Yoder, *Shalom: The Bible’s word for Salvation, Justice, & Peace*. (London: Hodder & Stoughton, 1987), p. 5.

²⁴²Yoder, *Shalom*. p. 5.

²⁴³Yoder, *Shalom*. p. 15.

²⁴⁴Yoder, *Shalom*. p. 113.

²⁴⁵Wolterstorff, *Until Justice and Peace Embrace*. (Grand Rapids, Mich.: William B. Eerdmans. 1983), p. 77.

What is important here is that the Bible sees a link between livelihoods and the environment, most clearly in the Torah which is given to the People of Israel as they entered the Promised Land. Here they were commanded to hold together both the care of the land and the care of the neighbour.

(i) The care of the land

The land is a gift from God who is the ultimate owner. During the Old Testament times, the land was the fundamental source of life and the majority of people were agriculturists and lived off the land.²⁴⁶ “It provided the prosperity for individuals in the families and for the whole society.”²⁴⁷ It is in fact acknowledged that the land was regarded as the primary source of all Israel’s economic wealth.²⁴⁸ According to Wright, the ownership of the land by God was aimed to protect the family and its land,²⁴⁹ and the biblical principle urges that the land should have a rest (Lev. 25:1; 26:14, 32, 35). Thus, God’s people should not remain silent about the misuse and overexploitation of the land. It is our responsibility as Christians to demonstrate this urgent need to those who are concerned.

(ii) The care of the neighbour

Though the Torah admits that the nation will always have a poor²⁵⁰ population amongst it (Deut. 15:11), its (the Torah) aim is, nevertheless, to remove or at least ease the poverty situation (Deut. 15:14), and this involves the caring for the poor (Lev. 25:35). Indeed, Jesus considered the Torah as a law or instruction which focuses on what people should do for better livelihoods towards each individual and his/her neighbour. For instance, when asked which is the greatest commandment in the law, Jesus emphasized: firstly, “You shall love the Lord your God with all your heart, and with all your soul, and with all your mind.”, and, secondly, “You shall love your neighbour as yourself.” (Matt.

²⁴⁶ G H Wittenberg, *The Significance of Land in the Old Testament*. JTSA 77, 58-60, (1991), p. 8.

²⁴⁷ Eryl Davies, “Land: its Rights and Privileges”, in Clements, R E (ed), *The World of Ancient Israel*. (Cambridge: C.U.P., 1989), p. 349.

²⁴⁸ Ronald Clements, *God’s Chosen People: A Theological Interpretation of the book of Deuteronomy*. London: SCM, 1968), p. 52.

²⁴⁹ Wright, *God’s people in God’s Land*. p. 6.

22:34-40). In daily life relationships, the Torah requires fair and honest interactions among people without oppressing one another: *“And if thou sell ought unto thy neighbour, or buyest [ought] of thy neighbour’s hand, ye shall not oppress one another.”* (Lev. 25:14)

5.7. Conclusion

We learn that God calls his people to be good stewards of the world and everything in it. The work of the Creator belongs to Him and reveals Him. Its beauty proclaims His glory. Christians therefore should be concerned to treat it with humility and respect. In addition, God is concerned with life in the past, present and future, as a reason why Christ came in this world. Thus the Lord intends that the whole cosmos should be the object of His continuous loving care. He calls every one to be involved with Him in this continuous loving care, with a future hope that God will establish a new heaven and a new earth, where he will live with His people and the rest of creation, all renewed.

²³⁰ This may refer to someone who is a needy, of the lowest class, or subject to oppression and abuse.

Chapter Six

THE RESPONSE OF THE CHURCH TO ENVIRONMENTAL DEGRADATION AND SUSTAINABLE LIVELIHOODS.

6.0. Introduction

“The role of the Churches in the development and care of the peoples and lands of Africa is a well kept secret,” said secretary general of the ARC, Martin Palmer. “Sometimes it is so well kept that the central offices of the Churches themselves do not know the extent of their own work and influence.”²⁵¹ The church has a great role to play in educating and challenging both its members as well as its surrounding community to take responsibility in caring for the environment. This will also contribute to poverty alleviation as well as building a sustainable society, in which every member is an agent in his/her endeavor to develop.

This chapter will provide strategies on how religious institutions in Mozambique could respond to the environmental crisis as well as enhance the livelihoods of people which usually depends on the environment. The SLF is regarded as the most successful approach to be used in this context. The chapter will emphasize in a practical way how the church can make a contribution in teaching and mobilizing people to care for the environment, and how they can be involved in the development of their communities.

6.1. The church in action towards a sustainable environment in Mozambique

The church has an immense role to play in caring for the environment. Her calling to care for the environment, the magnitude of the environmental degradation which is getting worse and which results in an increase of poverty, should make the church recognize that her contribution towards this situation is a priority. “As Christians we have no choice. We must become stewards of creation. We have been placed on this blessed plot of land

²⁵¹ See *Alliance for Religions and Conservation*. From: <http://www.arcworld.org/news.asp?pageID=60>

to care for it and to make it fruitful. Creation is a gift.”²⁵² We believe in God’s continuous and loving care of the cosmos, the reason why he sent his Son Jesus Christ to give life and reconcile the whole world with the Creator (2 Cor. 15:19). Thus, the church and theology have to speak on this matter in order to offer their constructive contribution to the solution of the problem.²⁵³ I must emphasize that the church in Mozambique can do no less than continue Jesus’ mission of love and care for God’s creation, seeking shalom of God’s people as Jesus did.

My interviews with the people in Mozambique reveal to me the great need for the church to be involved in environmental issues. Talking about the church’s role in development in Mozambique, Delbina maintained that: “The church never talks about the environmental issues.”²⁵⁴ Likewise, another interviewee maintained that: “The church in Mozambique is busy preaching, talking about peace, AIDS, etc. but they forget that there is a need to talk about the environmental issues, which are the basis of our lives.”²⁵⁵ According to Diniz Matsolo, who represents the *Conselho Christao de Mocambique* – CCM (the Mozambican Council of Churches), the church is involved in peace initiatives, which is also about the promotion of being at peace with nature. At the same time, the church is involved in working with small-scale farmers, supporting them in their agricultural activities.²⁵⁶

There are different ways that the Church, especially in Mozambique can make a contribution towards a sustainable environment and livelihood.

6.1.1. Awakening people to their obligations as creatures on earth

A UN report has noted that it is unfortunate that most people still discard religious involvement as a possible way to heal the wounded earth. According to the report,

²⁵² Nancy G. Wright and Donald Kill, *Ecological Healing: A Christian Vision*. (Maryknoll, New York: Orbis Books, 1993), p. 16.

²⁵³ Breuilly and Palmer, *Christianity and Ecology*. P. 47.

²⁵⁴ Delbina. Interview by Anastase Nzabilinda in Maputo on Wednesday 15 December 2004.

²⁵⁵ Interview by Anastase Nzabilinda in Maputo on Wednesday 15 December 2004.

²⁵⁶ Diniz Matsolo. Interview by Anastase Nzabilinda in Maputo on Tuesday 14 December 2004.

churches have a role to play in awakening people of all walks of life to their obligations as created beings. The report has challenged “Christians to commit themselves to make life on earth meaningful and worthy of celebration just like the Lord’s Supper. Christians have to understand that they are part and parcel of the existence of the environment,”²⁵⁷ and the church has a mandate to emphasize this issue. This can clearly strengthen the understanding of our African view of the unity and harmony of creation. We saw in chapter 3 (3.4.2) how certain beliefs and attitudes contributed to a lack of care for the environment, and also how very few people have ever made the link between sustaining their lives and sustaining the environment. Given that the church has a key role to play in the area of beliefs and attitudes, a key task for the church in Mozambique is to awaken people to their obligations as creatures on earth.

6.1.2. The Church’s holistic involvement

The church has a mandate to be involved in development holistically. This has to do with the church’s involvement among humans as well as the rest of creation, which is the community of God. In fact, “There can be no meaningful understanding of a person apart from his or her relationships- with God, self, community, those he or she calls ‘other’, and the environment. People as individuals are inseparable from the social system in which they live.”²⁵⁸ According to Bruce Bradshaw, the holistic approach seeks to restore the harmony of creation that reflects the glory of God. In this regard, the visible, physical aspects of creation as well as the invisible, spiritual aspects must be harmonized with the abundant life we have in Christ.²⁵⁹ The holistic approach draws attention to the interrelationship between human beings and the rest of creation, as they constitute a common community. Thus, there can be no sustainability in the absence of the integrity of all creation.²⁶⁰

²⁵⁷ United Nations Report “The world commission on Environment and Development” on *Our Common Future* (1987), Publication, p. 111.

²⁵⁸ Myers, *Walking With The Poor*. p. 135.

²⁵⁹ Bruce Bradshaw, *Bridging the Gap: Evangelism, Development and Shalom* (Monrovia, California: MARC, 1993), p. 16.

²⁶⁰ A E Warmback, *The Earth is God’s and all that is in it: Development from the*

The gospel message is an inseparable mix of life, deed, word, and sign. “We are to be with Jesus (life) so that we can preach the good news (world), heal the sick (deed) and cast out demons (sign)...Our life and deeds make our words intelligible; our words help people understand our life and deeds.”²⁶¹ This calls upon the church to become involved in development programs that recognize the integrity of God’s creation, as it considers the whole person and the rest of creation.

In the context of Mozambique, the church has been involved in development, but its involvement has been limited by the enormity of the development needs as well as the financial limitations of the church. This speaks of the long history of war that the country has been experiencing, along with floods, droughts and many other crises.

6.1.3. The Church’s response to different environmental issues

As for the church’s direct response to the environmental crisis, there is a need for the church to respond to the issues of pollution, acting against deforestation, and addressing land degradation.

6.1.3.1. The church’s response to pollution

There is a need to educate people with regard to the problems of air and water pollution, and Christians should be involved in these campaigns. According to Karungi,

The Church should educate and encourage people to build and live in well ventilated, clean houses and surroundings. In particular, proper disposal of excrement and other waste should be stressed. Dirty habits, of throwing rubbish anywhere, especially organic waste, should be discouraged. The bad smells, which arise during decomposition of such material, pollute the air and thus make people’s lives uncomfortable. Worse still, such waste heaps become breeding grounds for flies and other harmful organisms, which cause or spread deadly diseases.²⁶²

perspective of the environment. *Journal of Theology for Southern Africa* 110, (2001), p. 85.

²⁶¹ Myers, *Walking With the Poor*. p. 134.

Water and air pollution is one of the most serious forms of environmental degradation in Mozambique. Each time I am in Mozambique I observe people burning tyres and many other substances that pollute the air. People gather at many rivers such as Umbeluzi, Rio Maputo, etc, to bath as well as to wash their clothes. Waste is dumped all over, especially in big cities such as Maputo, Beira, Quelimane, etc. The presence of litter along routes in cities is evidence that we have a serious problem.

Therefore, Christians can work hand-in-hand with the Christian Council of Mozambique and other civil society organizations and NGOs to carry out an environmental campaign, addressing the environmental crisis, especially trying to prevent the continuation of water pollution. Christians can also motivate people to join hands with one another in clearing different dirty places as they care for the environment, and this should go together with teaching people about the impact on our health and environment by illegal dumping of rubbish. Thus, as pastors or church leaders, our preaching should also include the urgent need to safeguard God's creation. The message of caring for creation can also be broadcast through radio stations and televisions in Mozambique. For instance a Christian radio station such as Trans-world Radio, which is well known in Mozambique, can be a good tool to call people to act in favour of God's creation.

6.1.3.2. The church should act against deforestation

Many trees are cut down for firewood, shelters, charcoal, or other forms of acquiring energy.²⁶³ In addition, a great number of trees are being cut down for traditional medicines and traditional healing rituals.²⁶⁴

Thus, Christians, particularly church leaders in Mozambique, have a task to encourage people to plant trees, so that, as they cut a number of trees, people should feel responsible for planting more, so that the next generations will not find only deserts. The good

²⁶² Karungi, "The Church's role in environmental Protection", p. 233.

²⁶³ The detail about this was expressed in our case Study on the fieldwork in Matutuine District.

²⁶⁴ I was convinced of this fact by my recent visit to Durban when I observed an excess of traditional medicines that are scatted in the market place in the city.

Rwandan slogan: “*Nutema kimwe ujye utera bibili*”, meaning (‘When you cut one, grow two’), can be a good motto in encouraging people to plant more trees so as to avoid deforestation/desertification. Indeed, as Byaruhanga contends, the church has an important role to play in educating people with regard to the importance of forests for the environment. “The fact that trees and forests have many values requires that they be protected. People should not cut trees indiscriminately. There must be a national policy about conservation of the forest reserves; and about afforestation, in areas where natural forests have been destroyed.”²⁶⁵

In this endeavor to fight deforestation, the people in Limuru in Kenya are a good example to follow. It is mentioned that Christians at Limuru have benefited from Father Kiongo’s initiated project for a nursery of indigenous trees. Indeed

Many of them have been conscientized on the need to preserve the environment by planting trees. He challenged all Christians to leave the environment better than they found it for the sake of posterity. His noble project is a sign of generosity on the part of Christians to future generations. His nursery has been highly recommended by agricultural extension officers, diocese development coordinators, forests and heads of various schools who have even brought their students to see for themselves.²⁶⁶

A similar programme has been noted amongst the African Indigenous Churches in Zimbabwe.²⁶⁷

6.1.3.3. The church’s contribution in addressing land degradation

The earth and everything in it is crying for justice. The land is suffering as a result of the use of pesticides and other chemicals that are being used in agriculture. Indeed, as a result of human selfishness, the land is being greatly abused and overexploited, neglecting the biblical mandate of jubilee, as a reminder of the necessity for the land to rest. “Today the

²⁶⁵ Karungi, “The church’s role in environment protection”, pp. 233-234.

²⁶⁶ Gitau, *The environmental Crisis*. p. 99.

land never rests” emphasized Calvin DeWitt. “The creatures are driven off. The homes of the diverse creatures of the prairies, grasslands, forests, and fields have become chemical deserts.”²⁶⁸

Addressing land degradation is an urgent task needing to be done in Mozambique where the land is being degraded day by day. This task should include the need for the church to educate people about the danger of land degradation in our generation as well as for the future generation. The church should thus play her role of advocacy, calling the government to use the available resources to act against this land degradation.

6.2. The church’s contribution to livelihood strategies

The church finds its calling in the *Missio Dei* (the Mission of God); which means bearing testimony to what God is doing in this world. This involves a process of making our communities, our societies and our world a place that is closer to God’s vision of *shalom*. In this involvement, there is a need to search for an adequate theory for development praxis to use, which is key to our effectiveness as the church. In this regard, for several reasons as we see in the next paragraphs, the SLF provides a successful tool for responding to environmental care, a strategy that can successfully contribute to enhancing and changing people’s livelihoods, especially in the context of Mozambique.

The *Missio Dei*, in our context, involves caring for God’s creation, encouraging not only a good relationship with God’s creation, but also with people among themselves. Our seeking of *shalom* also means the seeking of the well-being of God’s people, so that they can live a meaningful life, a life that they can also leave in the hands of the future generations.

²⁶⁷ See M L Daneel, “African Christianity and Environmental Reform: Zimbabwean Case Study” in I A Phiri, K A Ross and J L Cox (eds) *The Role of Christianity in Development, Peace and Reconstruction: Southern Perspectives*. (Nairobi: All African Conference of Churches, 1996), pp. 214-243.

²⁶⁸ De Witt, Calvin B (ed), *The Environment & the Christian*. Grand Rapids: (Baker Book House, 1991), p. 16.

6.2.1. Enhancing and changing livelihood strategies

A livelihood is what people do day by day to survive and flourish in the face of what comes their way, given the resources and relationships at their command, and the wider social arrangements that define their place and role in society.²⁶⁹ It consists of the assets (being natural, social, political, human, physical and economic), activities and entitlements, which people utilize in order to make a living.²⁷⁰

The church in Mozambique has therefore a responsibility to enhance people's livelihoods in the face of various vulnerabilities, so that their livelihoods can be sustainable, enabling them to cope with and recover from stresses and shocks and maintaining or enhancing their capabilities and assets both now and in the future, while not undermining the natural resource base.²⁷¹ This will help men and women throughout the country, especially in Matutuine District, to know how to utilize their available asset portfolios on both a short and long-term basis.²⁷² I believe that people in Mozambique will welcome and appreciate this development approach because it seeks to enhance their livelihoods, using wisely different assets that are available to them.

6.2.2. Addressing poverty in Mozambique

In enhancing the livelihoods of the people in Mozambique, one of the poorest countries on the planet, there is a need to address poverty. Indeed, poverty is a major problem that Africa is facing, especially the country of Mozambique, and both its causes as well as its consequences are hugely manifested. The UN defines poverty as not just income poverty, although that is fundamental, but the denial of choices and opportunities for a tolerable life. 'It is a lack of access to options and entitlements which are social, cultural, political

²⁶⁹ See Steve de Gruchy, *A Theological Appreciation of the Sustainable Livelihood Framework*. p. 3.

²⁷⁰ UNDP, *Sustainable Livelihoods Unit Home Page*. <www.undp.org/sl/overview/an_overview.htm> 1999

²⁷¹ Cf (DFID, 1998, 4).

²⁷² See UNDP, *Sustainable Livelihoods Unit Home Page*. (Website).

and environmental as well as economic.²⁷³ This calls for the churches, as well as those concerned with development in Mozambique, to join hands with a determination to fight against poverty. Since the church is the institution that is mostly involved with the poor, trusted by the poor and that identifies with the poor, it has therefore to take this advantage and responsibility to engage with the livelihoods of the poor in society. Thus, the church, in its mission in the world, has to take a further step to promote the well-being of the people who suffer from the effects of poverty.

One of the major findings of the World Commission on Environment and Development (WCED) was that poverty in numerous ways does contribute to environmental degradation especially in rural communities.²⁷⁴ For that reason therefore, their principal objective and commitment was to commit themselves to eradicating poverty while trying to safeguard the environment from destruction by rural communities.

Enhancing the livelihoods of people in Mozambique can be done through many ways depending on the people's needs as well as the resources that are available for this task. For the context of Mozambique, there are many problems and issues to deal with in this context of poverty alleviation. However, according to my observation, issues regarding education and employment are among the greatest needs of the country.

Thus, the church has to make an effort to contribute toward education at all levels in Mozambique depending on its ability to do so since the church also has limited resources. Many church denominations that I am aware of, such as the United Baptist Church of Mozambique, the Methodist Church, the Anglican Church, the Roman Catholic Church, etc, are contributing to the development of the country through education. Indeed, these churches and many others have primary schools, secondary schools, Bible schools, etc.

²⁷³ http://www.ecs.co.sz/cca/cca_2.htm

²⁷⁴ G H Brundtland, *Our Common Future*. World Commission on Environment and Development, New York: Oxford University Press, 1987; and Mustafa Tolba. *Sustainable Development: Constraints and Opportunities*. (London: Butterworth, 1987).

Training people for income generating activities is another great need in Mozambique. We have realized that environmental degradation, especially deforestation, is linked to poverty and unemployment. In fact, those who are unemployed may depend on the forest for their survival. The church can therefore contribute by training people for income generating activities such as leaf plate making, handicrafts, masonry, carpentry, etc., so that people may have alternative sources of income, otherwise deforestation will continue to accelerate.

6.3. The church should contribute toward food security in Mozambique

Environmental degradation has an impact on food security.²⁷⁵ There is therefore a need to help people in Mozambique to increase their food productivity without threatening the environment. In Mozambique, the economy is still largely based on subsistence agriculture. In fact, agriculture accounts for about one-third of GDP and employs four-fifths of the people. Commercial agriculture is highly diversified; cashews, sugar cane, cotton, tea and copra are all significant crops. But market farming is hindered by rudimentary physical infrastructure as well as institutional constraints including a restrictive leasehold tenure system and poor availability of rural credit.²⁷⁶

The church in Mozambique has therefore a role to play, hand-in-hand with the government and other humanitarian organizations, by helping people in their livelihoods with regard to the promotion of safe agricultural practices as well as helping people to have access to basic infrastructure. Indeed, it will be necessary for the church to collaborate especially with the government in starting up agricultural production, providing farming tools and techniques, selected seeds, offering micro-credit and reactivating the agricultural market.²⁷⁷

It is even the goal of the SL approach to reduce vulnerability, partly through increased food security, and this is important, because of the right use of the natural resource base.

²⁷⁵ See Section 2.5.1.

²⁷⁶ <http://biz.yahoo.com/ffc/mz.html>

This approach works successfully in the context of Mozambique where food shortage is a major issue, and as the majority of people in this country make their livelihoods through agriculture. Thus, the SLF will address poverty through securing food productivity in this country.

6.3.1. Supporting people in their small-scale farming practices

Small-scale farming reduces dependency and it creates self-reliance as people are not given fish, but are taught how to fish themselves. This is what Korten agrees with in his second generation approach to development, as people's capacities are developed to better meet their own needs through self-reliance.²⁷⁸ In addition, small-scale farming plays an important role in environmental care. Born in a family where we depended entirely for our livelihood on farming in the south of Rwanda, one of the techniques we used in this activity was plant rotation, which protected the land, ensuring that it stayed productive. Indeed, crop rotation "allows the different plants to take advantage of nutrients which the previous plant did not use, and to put different nutrients into the soil to avoid depletion of overall nutrients."²⁷⁹

Thus, as the church in Mozambique continues the mission of Jesus Christ, it has a prophetic role to play. In fact, "the prophet is the one who speaks before in the sense of proclaiming, or the one who speaks for, i.e. in the name of God."²⁸⁰ Having been given the gift of genuine preaching and teaching God's truth to his people, the prophet's aim is to build up God's people in truth, to improve their lives, to encourage them to obedience, and to comfort them in trouble (1 Cor.14: 3-4). Thus, the church, in her prophetic role, has to be concerned about policies, laws and infrastructures, assuming its role in the context of prophetic leadership and advocacy. She has to work in partnership with the government and other institutions, either in policy formulation, implementing or

²⁷⁷ See also "Conference on reconstruction and reducing the vulnerability of Mozambique" Italy, 3-4 May 2000. <http://www.reliefweb.int/w/rwb.nsf/0/332cd181a80acb60c12568d600515bbb?OpenDocument> ✓

²⁷⁸ See Korten, *Getting to the 21st Century*, p. 115.

²⁷⁹ Ron Macher, *Making Your Small Farm Profitable*. (Canada: Storey Books, 1999), p. 60.

²⁸⁰ Walter A. Elwell. *Evangelical Dictionary of Theology*. (Grand Rapids: Baker Book House, 1984), p. 886.

changing them in favor of small-scale farmers. In this context therefore, small-scale farming does contribute immensely to the development of the household as well as for the whole society as it provides food sufficiency and reduces unemployment problems.

6.4 Conclusion

The country of Mozambique has been undergoing many crises such as war, droughts, famines, flood, etc, and this is the time that the Christian community in this country should stand up and contribute toward a sustainable environment and livelihoods. In this chapter we have been discussing the contribution of the church in this struggle against environmental degradation, which is usually the result of livelihood strategies. As we discussed, the Church has a great task and a responsibility to make a difference by fighting against this crisis.

Chapter Seven

GENERAL CONCLUSION AND RECOMMENDATIONS

7.0. Introduction

This study has been focusing on the link between environmental degradation and livelihood strategies in Mozambique. Throughout the study, issues regarding the evidence of the environmental crisis in the African continent were emphasized (especially in chapter two). In the context of Mozambique, the fieldwork in Matutuine District was a case study that shows the reality of human livelihoods that depend entirely on the environment (see Chapter three). To this was added an analysis of the environment and livelihoods in Mozambique, making use of the Sustainable Livelihoods Framework (Chapter four), and which ultimately points out the blockages for those who degrade the environment to see the link. In addition, the study discusses theological resources in connection with the environment (Chapter five), as well as the practical response of the church to environmental degradation and Sustainable Livelihoods (Chapter six). This chapter is the conclusion of our study: It summarizes our findings and, at the same time, it gives some recommendations, aiming at the sustainability of both the environment as well as the people in Mozambique.

7.1. The link between the environmental degradation and livelihoods as crucial

The link between environmental degradation and livelihood strategies in most of the developing countries is no longer questionable. Indeed, local communities in many parts of Africa do enhance their livelihood security through the use of available natural resources, especially in cutting trees to get charcoal and firewood that they exchange for cash, and to hunt the animals that live close to them for meat, an account that I particularly observed in Mozambique as discussed in my research.

This study has clearly showed the reality concerning this link, and at the same time suggested ways for sustaining people's lives in an environmentally friendly way. The framework for this is the biblical understanding of the stewardship of creation, and this was clearly linked to the possible role of the church in responding to this crisis, especially in the context of Mozambique.

7.2. At the heart of this link is poverty

At the heart of environmental degradation due to people's livelihood strategies is poverty: poor people are likely to be the ones who tend to underestimate the value of the natural resources and this happens in most of the developed countries. In fact,

Poverty is a factor in accelerating environmental degradation, since the poor, with shorter time horizons and usually less secure access to natural resources, are unable and often unwilling to invest in natural resources management (for example, soil conservation and fertilizers). In addition, poor people are often the most exposed to environmental damage, because they cannot afford, for example, to purchase safe water or to live in a neighborhood that is less polluted.²⁸¹

Since the end of the Twentieth Century, the world has been suffering from poverty and environmental destruction more than at any other time in history.²⁸² Based on this affirmation, I believe that there is no way to eradicate poverty without protecting the environment, and, in addition, any good development must sustain and nurture the environment. Therefore, if people care for the environment, they can live longer and progress, otherwise its abuse troubles their existence.²⁸³

Because of this vital link between poverty and environmental degradation, even the attempt toward a lasting solution must consider the two paradigms: any environmental policies must be intertwined with efforts towards poverty eradication. According to Salih and Tedla, based on Professor J. B. Opschoor's observations, since "Poverty and

²⁸¹ Mink, *Poverty, Population and the Environment*. World Bank Discussion Paper 189. Washington D. C. 1993.

See also World Bank, *Poverty Reduction Handbook*. (Washington, D.C., 1992).

²⁸² Korten, *Getting to the 21st Century*. p. 67.

environmental degradation have common root problems in Africa, this means that on these a priori grounds alone, environmental policies must be intertwined with efforts addressing the poverty issue.”²⁸⁴ Thus, at local level, as Mink contends, “Reducing poverty will often lead to improved environmental quality and vice versa.”²⁸⁵

7.3. Now is the right time for the church to act

The theology of creation is rooted in the divine commission to men and women: to till the earth and perfect it (Genesis 1:28). God calls us as a church to see that justice is done on earth (cf. Isaiah 42:5, 6). Some people act selfishly, taking advantage of God’s work (creation) in order to enrich themselves, even if it harms others and the environment. Thus, “As Christians we have no choice. We must become stewards of creation. We have been placed on this blessed plot of land to care for it and to make it fruitful. Creation is a gift.”²⁸⁶ In fact, we are Christians who believe in the Creator God.²⁸⁷ We believe in his continuous and loving care of the cosmos. Because of his love to the world, God sent his Son Jesus Christ to give life and reconcile the whole world with the Creator (2 Cor. 15:19). This is, indeed, a concern Jesus’ followers cannot help but demonstrate, as they treat God’s creation with love and care. And the church in Mozambique cannot do less than continuing Jesus’ mission of love and care for God’s creation, seeking the shalom of God’s people as Jesus did.

Being well placed, disposed and equipped for promoting the environment, the church has a responsibility for addressing environmental issues so that people will know how to deal with the environment in a sustainable way

7.4. More participants needed in this struggle

The struggle toward the integrity of creation is a struggle that cannot be achieved by the church alone, but by the whole body of those who can make a difference in their

²⁸³ Getui, “Mission of the church and Concern for Environment”. p. 43.

²⁸⁴ Salih and Tedla, *Environmental Planning*. p. vii.

²⁸⁵ Mink, *Poverty, Population and the Environment*.

²⁸⁶ Wright and Kill, *Ecological Healing*, p. 16.

community. There is a need for the local community to be involved in the activities that are environmentally friendly, and this cannot be achieved if those in authority do not become strong participants, seeking perspectives and strategies for assessing, interpreting and addressing environmental issues. There is therefore a need for community participation as well as the local management systems which will enhance both environmental sustainability and human security.

7.5. Conclusion

This study investigates and discusses the existence of a strong link between the environment and people's livelihood strategies, especially in Mozambique. This leads us to see both the vulnerability context of people in Mozambique as a result of poverty and how this poverty situation puts the environment in crisis. Thus here is God's earth in crisis as a result of God's people's daily lives. This therefore emphasizes an urgent need for both people's sustainable livelihoods as well as a sustainable environment, and the church can be an important contributor in this struggle, if she seeks to eradicate poverty while she also advocates for the stewardship of creation. The key to this goal is to assist people in Mozambique, in their livelihood activities, to achieve security and sustainability, while they are also environmentally friendly.

²⁸⁷ Gnanakan, *God's World*. p. 7.

Bibliography

A. Books

African Development Education Network, *Caring for Africa: Training Manual on Environment*. (Nairobi: ADEN, 1995), pp. 50-51.

Berry, A J, *Care of Creation: Focusing Concern and Action*. (Leicester: Intervarsity Press, 2000).

Bond, Peter, *People and the Environment*. (Oxford: Basil Blackwell Ltd, 1989).

Bonino, Jose Miguez, *Towards a Christian Political Ethics*. (Philadelphia: Fortress Press, 1983), pp. 7-117.

Breuilly, Elizabeth and Palmer, Martin (eds), *Christianity and Ecology*. (London: Cassell Publishers Limited, 1992).

Brundtland, G H, *Our Common Future*. World Commission on Environment and Development, New York: Oxford University Press, 1987.

Burkey, Stan, *People First: A guide to self-reliant participatory Rural Development*. (London: Zed Books, 1993).

Butler, Mark and Greenstein, Ran. *Sustainable Livelihoods: Towards a Research Agenda*. November 1999.

Cahn M, *The Business of Living: rural micro-enterprise and Sustainable Livelihoods*. Ph.D thesis in progress. Massey University, Palmerston North 2002.

Carmody, J, *Ecology and religion*. (New York: Paulist Press, 1983).

Chambers, Robert and Conway, Gordon. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. Institute of Development Studies Discussion Paper 296. (University of Sussex, Brighton: IDS Publications, 1992).

Conradie, Ernst and Field, David, *A Rainbow Over the Land: A South Africa Guide on the church and the Environmental Justice*. (Sybrand Park: Western Cap Provincial Council of Churches, 2000).

Clements, Ronald, *God's Chosen People: A Theological Interpretation of the book of Deuteronomy*. (London: SCM, 1968).

Daneel, M.L. "African Christianity and Environmental Reform: Zimbabwean Case Study" in Phiri I.A, Ross K.A and Cox J.L, (eds) *The Role of Christianity in Development, Peace and Reconstruction: Southern Perspectives* (Nairobi: All African Conference of Churches, 1996), pp. 214-243.

De Gruchy, J & Field, D, "Ecology" in de Gruchy, J & Villa Vicencio, C (eds), *Doing ethics in context: South African Perspectives*. (New York: Orbis Books, 1994).

✓ De Witt, Calvin B (ed), *The Environment & the Christian*. (Grand Rapids: Baker Book House, 1991).

_____, *Caring for Creation: Responsible Stewardship of God's Handiwork*. (Grand Rapids: Bake Book House, 1998).

_____, "Creation's environmental challenge to evangelical Christianity" in R J Berry (ed), *The Care of Creation*. (Leicester: Inter-Varsity Press, 2000), pp. 60- 73.

Ddungu, Adrian K "Environment protection: Church responsibility" in Agbasiere, Joseph

T. and Zabajungu B K (eds) *Church Contribution to Integral Development*. (Eldoret, Kenya: AMECEA Gaba Publications, 1989), pp. 236- 243.

DFID, *Sustainable livelihoods guidance sheets*.

Ellis, F., *Rural livelihoods and diversity in developing countries*. (Oxford University Press, Oxford, 2000).

Elwell, Walter A. *Evangelical Dictionary of Theology*. (Grand Rapids: Baker Book House, 1984)

Ferraz, Bernardo and Munslow, Barry (eds). *Sustainable development in Mozambique*. (Oxford: James Currey Ltd, undated).

Field, David N. "The Gospel, The church and The Earth: Reflections on an Ecological Ecclesiology" in *The Journal of Theology for Southern Africa* 111 (November 2001), pp. 67-79.

Fihavango, G, "Quest for Ecotheology in a situation of Ecological Disaster" in Mugambi J N K and Vahakangas, M, *Christian Theology and Environmental Responsibility*. (Nairobi: Acton, 2001).

Freire, Paulo, *Pedagogy of the oppressed*. (London: Penguin, Rev. Ed., 1993).

Getui N. Mary, "Mission of the Church and Concern for the Environment" in Nasimiyu-Wasike A. and D.W. Waruta (eds). *Mission in African Christianity: Critical Essays in Missiology*. (Nairobi: Acton Publishers, 2000), pp. 40-58.

Gitau, S K. *The environmental Crisis: A Challenge for African Christians*. (Nairobi: Acton Publishers, 2000).

Gnanakan, Ken, *God's World: A Theology of Environment*. (Cambridge: The

University Press, 1999).

Goudie, Andrew, *The Human Impact On The Environment*. (Cambridge: The MIT Press edition, 2000).

Grainger, A, *Controlling tropical deforestation*. (London: Earthscan, 1992).

Hall, D J, *Imaging God: Dominion as Stewardship*. (Grand Rapids: MI: Eerdmans, 1986).

Hall, Margaret, and Young, Tom, *Confronting Leviathan: Mozambique Since Independence*. (Athens, Ohio: Ohio University Press, 1997).

Harris, J, *Depoliticizing Development. The World Bank and Social Capital*. (London: Anthem Press, 2002).

Haight, F J. *The Promise of Nature: Ecology and Cosmic Purpose*. (New York: Paulist Press, 1993).

Hurni, H, "Ecological Issues in the Creation of Famines in Ethiopia." Paper presented at the National Conference on Disaster Prevention and Preparedness Strategy for Ethiopia. Addis Ababa (Dec. 5-6, 1988).

Instituto Del Tercer Mundo (ITEM), *The World Guide 1999/2000*. (Oxford: New International Publications, 1999).

Jones, M (ed), *The World Book Encyclopedia*. (United States of America: Field Enterprises Educational Corporation, 1961).

Kalugila, L., "Old Testament Insights and the Akagera Region, Tanzania", in Mugambi JNK and Vahakangas, M. 2001. *Christian Theology and the Environmental*

Responsibility. (Nairobi: Acton. 2001).

Karungi, Byaruhanga T A. "The Church's role in environment protection" in Agbasiere, Joseph T. and Zabajungu B.K. (eds) *Church Contribution to Integral Development*. (Eldoret, Kenya: AMECEA Gaba Publications, 1989), pp. 228-235.

Korten, David C, *Getting to 21st Century: Voluntary Action and the Global Agenda*. (West Hartford, Conn.: Kumarian Press, 1990).

Kretzmann, John and Mcknight, John, *Building Communities from Inside out: A Path toward finding and mobilizing a community's assets*. (Chicago: ACTA Publications, 1993).

Loader, J.A. "Image and Order: Old Testament Perspectives on the ecological Crisis", in Voster, W S (ed.), *Are we killing God's earth?: Ecology and Theology*. (Unisa: Pretoria, 1987).

Main, Hamish "The effects of urbanization on rural environments in Africa" in Tony Binns (ed), *People and Environment in Africa*. (Chichester (UK): John Wiley & Sons Ltd, 1995).

MacArthur, John, *The MacArthur Study Bible*. (Nashville (USA): World Publishing, 1997).

Macher, Ron. *Making Your Small Farm Profitable*. (Canada: Storey Books, 1999).

Marx, K, *Theories of Surplus Values*, Vol. 1, (Moscow: Progress Publishers, 1975).

Menete, M.Z.L, and Mazuze, F.M., *Situação Ambiental em Moçambique: Solos e Uso daTerra*. Ministério Para a Coordenação da Acção Ambiental. Maputo, Mozambique, 1997.

- Meyer, Art and Meyer, Jocele, *Earth-Keepers: Environmental Perspectives on Hunger, Poverty and Injustice*. (Ontario: Herald Press, 1991).
- Middleton, Neil et al, *The Tears of the Crocodile: From Rio to Reality in the Developing World*. (Colorado: Pluto Press, 1993).
- Moltmann, J, *Creating a Just Future*. (Philadelphia: Trinity Press International, 1989).
- Mpumlwana, Malusi M. "The Challenge of Development to the Church: A Spiritual Movement for Humanization" in Koegelenberg, R. (Ed) *Transition and Transformation: A Challenge to the Church*. (Cape Town: EFSA, 1994), pp 61-80.
- Mwombeki, M, "Ecology in the New Testament" In Mugambi, J N K & Vahakangas, M (eds) 2001. *Christian theology and environmental responsibility*, 96-111. (Nairobi: Acton, 2001).
- Myers, Bryant. *Walking with the poor*. (New York: Orbis book, 2002).
- Nash, J. *Loving Nature: Ecological Integrity and Christian Responsibility*. (Nashville, TN: Abingdon, 1992).
- Neefjes, Koos. *Environments and Livelihoods: Strategies for sustainability*. (Oxford: Oxfam, 2000).
- Nehring, Andreas, *Ecology, a Theological response*. (Madras-India: The Gurukul Summer Institute-1993, 1994).
- North, D, *Institutional Change and Economic Performance*. (Cambridge: Cambridge University Press, 1990).

- Nürnbergger, Klaus, *Prosperity, Poverty and Pollution*. (London: Zed Books, 1999).
- Osborn, Lawrence, *Guardians of Creation*. (Leicester: Apollos, 1993).
- Pearce, F, "Deserting dogma" in *Geographical*. January, 66 (1), (1994), pp. 25-28.
- Phillips, David R. and Verhasselt, Yola (eds.). *Health and Development*. (London and New York: Routledge. 1994).
- Preuss, H D, *Old Testament Theology*.(Louisville, KY: John Knox Press, 1995).
- Salih, Mohamed M.A. and Tedla, Shibru (eds), *Environmental Planning, Policies and Politics in Eastern and Southern Africa*. (London: Macmillan Press Ltd, 1999).
- Shao, John, "Alleviating Poverty in Africa" in Belshaw, D., Calderisi, R. and Sugden, C.(eds.) *Faith Development: Partnership between the World Bank and The Church in Africa*. (Oxford: Regnum Books, 2001).
- Sindima, Harvey. "Community of Life: Ecological Theology in African Perspective", in Birch, B C , Eakin, W and McDaniel, B J. *Liberating Life: Contemporary Approaches to Ecological Theology*. (Maryknoll: Orbis, 1990), pp. 137-147.
- Tolba, Mustafa, *Sustainable Development: Constraints and Opportunities*. (London: Butterworth, 1987).
- Vorster, W S, *Are we killing God's earth?* (Pretoria: University of South Africa, 1987).
- Walvoord, John and Zuck, Roy, *The Bible Knowledge Commentary*. (USA: Victor

Books, 1985).

WCC (World Council of Churches). "Threats to the environment" in *Christian Faith and the World Economy Today* (Geneva: WCC Publications, 1992), pp. 17-28.

Weaver, John, *Earth shaping earth keeping: A Doctrine of Creation*. (London: Lynx, 1999).

Wilkinson, Loren (ed.), *Earth Keeping in the 90s: Stewardship of Creation*. (Grand Rapids, Michigan: William B. Eerdmans Publishing Company, 1980).

Wilson, Francis and Mamphela, Ramphela. *Uprooting Poverty: The South African Challenge*. (Cape Town: David Philip, 1989).

Wolf, A, *Does Education Matter? Myths about Education and Economic Growth*. (London: Penguin, 2000).

Wolterstorff, *Until Justice and Peace Embrace*. (Grand Rapids, Mich.: William B. Eerdmans. 1983).

World Bank, *Poverty Reduction Handbook*. (Washington, D.C., 1992).

_____, *World Development Report 1995: Workers in Integrating World*. (New York: Oxford University Press, 1995).

_____, *Toward Environmentally Sustainable development in Sub-Saharan Africa*. (Washington: World Bank, 1996).

World Health Organization, *Our Planet, Our Health: Report of the WHO Commission on Health and Environment*. (Geneva: WHO, 1992).

Wright, Nancy G. and Kill, Donald, *Ecological Healing: A Christian Vision*.
(Maryknoll, New York: Orbis Books, 1993).

Yearley, Steven, *Sociology, Environmentalism, Globalization: Reinventing the
Globe*. (London: SAGE Publication, 1996).

Yoder, Perry, *Shalom: The Bible's word for Salvation, Justice, & Peace*. (London:
Hodder & Stoughton, 1987).

b. Journals

Asante, Emmanuel "Ecology: Untapped Resource of Pan-Vitalism in Africa" in *African
Ecclesial Review* 27 (1985), pp. 289-293.

De Gruchy, Steve "The Contribution of Universities to Sustainable Livelihoods". (Draft).

_____, "A Theological Appreciation of the Sustainable Livelihood
Framework". p. 3. (Draft).

_____, (ed), "10 Themes for Sermons on Environmental Justice", in
Warmback, Andrew (ed), *Bulletin for Contextual Theology in Africa*, volume 8,
No 2 & volume 8, No 3 (April & August 2002), pp. 95-98.

_____, "Of Agency, Assets and Appreciation: Seeking commonalities
between theology and development", in *The Journal of Theology for Southern
Africa* 117 (November, 2003), pp. 20-39.

Haddad, Beverley G. "Gender, Development, and Faith: The Church and women's
struggle to survive" in *Missionalia*, Vol 31. No.3, (Nov 2003), pp. 427-450.

Mink, Stephen D. *Poverty, Population and the Environment*. World Bank

Discussion Paper 189. Washington D.C. 1993.

Mudau, Zwodangani “Biblical and Theological Aspects of Ecology” in Warmback, Andrew (ed) *Bulletin For Contextual Theology in Africa*. Vol. 8, Number 2&3. April & August 2002. Pietermaritzburg: School of Theology University of Natal, pp.14-20.

Mugambi, Jesse N.K. “Emissions Trading as an Aspect of Toxic Waste Dumping” in Warmback, Andrew (ed) *Bulletin For Contextual Theology in Africa*. Vol. 8, Number 2 & 3. April & August 2002. Pietermaritzburg: School of Theology University of Natal.

Pain, Adam and Lautze, Sue. “Addressing Livelihoods in Afghanistan”, Afghanistan Research and Evaluation Unit: September 2002.

Tham, Chris, “The Response of the Church to Environmental Degradation: Some Insights from India” in Warmback, Andrew (ed), *Bulletin for Contextual Theology in Africa*. Vol 8, No 2& 3; April & August 2002, pp. 89- 94.

United Nations Report “The world commission on Environment and Development” on *Our Common Future* (1987), Publication, p. 111

Wangiri, Eugene, “Urumwe Spirituality and the Environment”, in Getui, M Obeng E A (eds). *Theology of Reconstruction*. (Nairobi: Acton, 1999).

Warmback, A.E., “Justice to the earth: People and the environment in South Africa”. *Journal of Constructive Theology* 5 (2), 3-11, 1999.

_____, The Earth is God’s and all that is in it: Development from the perspective of the environment. *Journal of Theology for Southern Africa* 110 (July 2001), pp 77- 88.

WCED, *Food 2000: Global Policies for Sustainable Agriculture*. A Report of the Advisory Panel on Food Security, Agriculture, Forestry and environment to the World Commission on Environment and Development. (London: Zed Books, 1987), pp 2-5.

White, L, "The historical roots of our ecologic crisis", *Science* 155:1203-1207, 1967, pp. 31-42.

c. Websites

Alliance for Religions and Conservation. From:

<http://www.arcworld.org/news.asp?pageID=60> Accessed on August 15, 2004.

Campbell, Jock. "Linking the Sustainable Livelihood approach and the Code of Conduct for responsible fisheries". University of Exeter Campus. December 1999. From: www.ex.ac.uk/imm/ Accessed on October 17, 2004.

Center for Environmental Information and Knowledge in Africa (CEIKA) "Best Practices of Environmental Information System in Mozambique".

www.easd.org.za/Eis/repts/Mozambique/mzeis2.html Accessed on Monday October 9, 2004.

"Conference on reconstruction and reducing the vulnerability of Mozambique" Italy, 3-4 May 2000.

<http://www.reliefweb.int/w/rwb.nsf/0/332cd181a80acb60c12568d600515bbb?OpenDocument> Accessed on 15 October 2004.

"Environmental Degradation". Available from:

www.library.thinkquest.org/26026/science/environmental_degradation Accessed on Monday, October 11, 2004.

Frankenberger, Timothy "A brief overview of sustainable livelihoods approaches".

From: www.fao.org/docrep/003/X9371e22.htm

Glavovic, Bruce "Neighbours, Worlds Apart: Livelihood prospectus in Malawi and Mozambique". Quoted from www.devnet.massey.ac.nz/papers/Glavovic Massey University.

"Global Environment" from:

http://www.ucsusa.org/global_environment/global_warming/index.cfm Accessed on 21 January 2005.

Gordon, Wenham. *The Bible and the Environment*. From:

http://www.jri.org.uk/brief/bible_wenham.htm Accessed on 2/23/2004.

Gyamfi-Aidoo, "Causes of environmental problems", 1998.

www.easd.org.za/Eis/repts/Mozambique/mozeis2.htm Accessed on Monday, October 11, 2004.

"Human capital, Household Welfare, and Children's Schooling in Mozambique" on

<http://www.ifpri.org/pubs/abstract/abstr134.htm>

Kathy Gonçalves, "The Minefields in Matutuine" From:

<http://www.landmines.org.uk/Countries/MineFields/Articles/158> Accessed on August 10, 2004.

International Food Policy Research Institute (IFPRI) and the World Resources Institute (WRI), "News Release: New Study Reveals that environmental damage threatens future world food production". Quoted from:

www.worldbank.org/html/cgiar/press/news0102.htm

International Monetary Fund, "Zambian Poverty Reduction Strategic Paper", March

2002. <http://www.imf.org/External/NP/prsp/2002/zmb/01/> , p. 118. Accessed in November 15, 2004.

Killeen, Damian and Rahman, Atip, "Poverty and environment." 2002. Available at: www.ringalliance.org/ring_pdf/wssd_03_poverty.pdf.

Laroche, M. "On the Concept and Dimensions of Human Capital in a knowledge-based Economy Context" (1998), found on www.gc.ca/wo/98-01e.pdf

Mabogunje, Akin L. "Poverty and environmental degradation: Challenges within the global economy", 2002. Downloaded from: www.findarticles.com

Menete, M.Z.L "The Need for Collaborative Research on Environment, Soil, and Water Management for Sustainable Agriculture". Found on: www.greentreks.org

"Mozambique: growth with poverty" at: <http://www.un.org/ecosocdev/geninfo/afrec/subjindx/143moz1.htm> Accessed on September 9, 2004.

"Mozambique". Information taken from: www.iss.co.za/AF/profiles/Mozambique/NatalRes.htm Accessed on September 9, 2004.

"Mozambique Map", downloaded at: <http://www.mozambique.mz/emapa.htm> Accessed in August 10, 2004.

Mozambique News Agency, "Flood victims in Matutuine lack supports". From: www.reliefweb.int/w/rwb.nsf Accessed in August 10, 2004.

"New round of assessments on drought vulnerability starts" at: <http://www.scienceinafrica.co.za/2002/december/drought.htm>

“Mozambique Tourism”. Downloaded at

<http://www.moztourism.gov.mz/potencial/maputop.htm>

PCDF, *Principles of Sustainable Livelihoods*. Declaration of a North American Regional Consultation on Sustainable Livelihoods. January, 1995.

<www.iisd.ca/pcdf/1995/princs.htm>

Rebucci, Alessandro (IMF). Why did Mozambique fall into debt? *Mozambique's debt burden in historical perspective*. From:

http://www.afrol.com/Countries/Mozambique/backgr_debt_history.htm

Roberts, Leslie “Focus: Environmental degradation is contributing to health threat worldwide”. Quoted from www.ourplanet.com/imgversu/95/roberts.html

Slack, Gordy “Africa’s environment in Crisis”.

www.diglibl.amnh.org/articles/Africa?Africa_environment.html Accessed on Monday, October 11, 2004.

“The environment and health”. Visit:

www.phmovement.org/about/background4.html

UNDP, Sustainable Livelihoods. Downloaded on 15.01.2004 from

www.undp.org/sl/index.htm p. 9.

World Bank, “Unhealthy Environment, Unhealthy People.” At: www.worldbank.org.

“World estimates of the HIV&AIDS epidemics at the end of 2004” available at:

www.avert.org/worldstats.htm