Centre for Social Justice and Ethics (CSJE)
&
Alliance of Religions and Conservation (ARC)

STEWARDSHIP OF GOD’S CREATION
A Catholic Environmental Toolkit for Catechists
and Seminarians

CUEA PRESS
STEWARDSHIP OF GOD’S CREATION: A CATHOLIC ENVIRONMENTAL TOOLKIT FOR CATECHISTS AND SEMINARIANS

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Here is a growing global concern on environmental issues and especially on the effects of climate change. Numerous conferences and workshops are being organised to address these issues. The Catholic Church considers herself an integral player in attempts to address these issues of global interest. The Catholic Church’s concern is exemplified in Psalms 24:1: “The Earth is the Lord’s and all that it holds.” This Psalm is a response to what God has given us human beings to take care of, it is also a calling to honour the many blessings that we have which range from the clean air we breathe, the life sustaining water and the produce of the land we consume to the seas and oceans.

As the world grapples with the question of climate change and environmental conservation, we Catholics are reminded that our relationship with God and God’s creation is a profoundly spiritual, ethical and moral issue. This in essence means that environmental matters are about our responsibility as God’s children and people of faith to care for each other and future generations.

For us in Africa and particularly the AMECEA region, matters of environmental protection and conservation are not a distant reality and are an issue of utmost concern. This is because the region continues to be faced with the adverse effects of not having cared for the environment, partly due to our own human negligence. We are faced with unpredictable weather patterns that affect food production and occasion droughts and famine. Catholic Social Teachings calls us to consider our actions and policies and the effects they will have on the poor, marginalised and vulnerable people. Pope John Paul II reminded us that, “We cannot interfere in one area of the ecosystem without paying due attention to both the consequence of such interference in other areas and to the well-being...
of future generations.” Africa and AMECEA region is now suffering the effects of interference with the ecosystem. It is for this reason that all the faithful should be educated on the need to play their role as citizens of the world in restoring the environment to its original glory.

This toolkit, written from an African theological perspective, that has been prepared by the Centre for Social Justice and Ethics (CSJE) in collaboration with the Alliance of Religions and Conservation (ARC) could not have come at a better time. It speaks to the contemporary environmental issues affecting AMECEA, offering African theological solutions. It is imperative that all people of goodwill in our continent, and in particular in the AMECEA region, receive good formation on matters of the environment. This toolkit will therefore play a critical role in inculturating environmental protection and conservation into the formation programmes of catechists and seminarians.

I therefore take this opportunity to thank and congratulate ARC and CSJE of the Catholic University of Eastern Africa for this timely and noble initiative. The toolkit will go a long way in ensuring that matters of environment in the AMECEA region are well integrated in our faith.

I call upon all the faithful and people of good will in the AMECEA region to make good use of this toolkit as they work towards protecting and conserving the environment for the present and future generations.

Most Rev. Tarcisio Ziyaye
Archbishop of Lilongwe
Chancellor - The Catholic University of Eastern Africa
This toolkit on the environment comes at a time when the world is facing an environmental crisis of an unprecedented scale in the history of humankind. The high levels of human suffering being witnessed now can largely be attributed to this crisis. If stringent measures are not taken to curb the crisis, it is clear that human life on the planet is threatened with extinction. I must say that it is this understanding that motivated the Catholic University of Eastern Africa (CUEA), through its Centre for Social Justice and Ethics (CSJE), in collaboration with the Alliance of Religions and Conservation (ARC) to embark on this journey that has culminated in the development and publication of this toolkit. As an institution of higher learning, CUEA recognises the need to have catechists and seminarians who are well formed with a strong understanding of the need to care for the environment.

In this toolkit, a number of environmental issues have been addressed. These are issues that the common person can relate to. The various chapter contributors have contextualised key environmental concerns by bringing in African theological perspectives in a manner that the beneficiaries can relate with. It is noteworthy, also, that in each chapter the four pastoral dimensions of community, service to God, witness and worship have been used to help the beneficiaries reflect on each of the environmental issues.

Land as an environmental concern has been discussed, bringing out the proper use of land as well as highlighting contemporary challenges surrounding land. The toolkit also draws insights from the African understanding of land, Church Social Teachings and Holy Scriptures. The chapter on biodiversity explains the variety of God’s creation and the symbiotic relationship all creatures have. This chapter emphasises human activities and how these impact on the ecosystem. The Mijikenda
of Kenya have been used as an example of an African community that preserves biodiversity. The importance and value of water is highlighted both from the Christian and African perspectives. Practical and pastoral actions that could help protect the quality and quantity of water have also been highlighted. The last chapter addresses the variety of natural resources that serve as sources of energy and the challenges facing their conservation. It has elaborately brought out the various ways in which African communities, mainly within AMECEA region, preserved their natural resources.

CSJE has in a simple and innovative way brought out the church’s pastoral concern on matters of environment through the lens of African theology. I commend the good work that has been done by the various contributors. I also have no doubt that CSJE will disseminate the information contained in the toolkit throughout the AMECEA region as it was intended to be.

I also thank the Alliance of Religions and Conservation for supporting our institution in the development and publication of this toolkit that is intended to benefit catechists and seminarians in the AMECEA region. The Catholic University of Eastern Africa through CSJE will endeavour to champion environmental protection and conservation.

Msgr. Dr. Pius Rutechura
Vice Chancellor
The Catholic University of Eastern Africa
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We appreciate the editors of this handbook, Susie Weldon, Sr. Dr. Elizabeth Nduku and Mr. Sewe-K’Ahenda, who put in many hours to ensure the work is of the best quality.
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Population growth, poor management of scarce resources, and soil erosion due to overgrazing, deforestation, poor water resource management coupled with lack of stable political institutions and leadership are some of the factors that are threatening our Mother Earth. Poverty, food insecurity, drought, and famine exacerbate even further environmental degradation in the AMECEA region. This points to human actions that are indeed the cause of great strain to the environment and the integrity of creation. This is why Pope Benedict XVI argued that if humans do not begin to listen to the voice of the Earth they will risk destroying its very existence.\(^1\) To reverse this situation, there is need to live in harmony with all creation; indeed this is an obligation for all Christian faithful. They have “a moral obligation to care for the environment, to respect all God’s creation and to ensure that its resources are equitably shared with all. Promoting authentic ecology has its deepest roots in the obedience of faith.”\(^2\)

Pope Benedict further urged human beings to “legitimately exercise a responsible stewardship over nature, in order to protect it, to enjoy its fruits and to cultivate it in new ways, with the assistance of advanced technologies, so that it can worthily accommodate and feed the world’s population. On this Earth there is room for everyone: here the entire human family must find the resources to live with dignity, through the help


\(^2\) Benedict XVI, *Verbum Domini*, n. 108.
of nature itself – God’s gift to his children – and through hard work and creativity. At the same time we must recognize our grave duty to hand the Earth on to future generations in such a condition that they too can worthily inhabit it and continue to cultivate it.”

The current environmental threat calls for personal and collective responsibility in order to restore the harmony of creation and critically examine the forces that threaten the dignity of human life. Our approach is unique, in that, it is based on faith imperatives and the African vision of life and spirituality. The intimate nexus between faith and the environment is clear in the sacred scriptures. For indeed, we see and glorify God in His creation. Thus we have to “look with new eyes at the entire created cosmos since it contain traces of that Word through whom all things were made.”

A faith-based approach to environmental care as is proposed here intends to promote an authentic biblical interpretation of man’s relationship with nature in dialogue with African cultural values on environmental protection. Since the toolkit is intended for use in Africa and the AMECEA region in particular, a reflection on Catholic social teaching alongside African faith beliefs and theology makes it more applicable in our context. Further, the toolkit reiterates the key role of human persons in creation as stipulated in the Bible and thus helps Christians to understand their role in creation and assume responsibility for a destiny that is shared by all.

This toolkit is timely given the current global ecological crisis that threatens both the future of humans and the integrity of creation. It underlies the role of humanity as the stewards of God’s creation and calls all to understand their divine duty of conserving the environment. It is the purpose of this document to strengthen and build the capacity of the people of God to care for creation. It is designed to provide catechists and seminarians with the necessary information on current environmental issues facing Africa and allow them to disseminate it to their fellow Christians. The focus is on land, water, energy and biodiversity. It is

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4 Ibid.
hoped that these insights will prompt the users to be actively involved with their communities to become aware of the need to treat resources with utmost care.
CHAPTER 1

LAND: A GIFT FROM GOD TO HUMANITY

Introduction

This chapter examines the meaning of land, facts about land and its use, and environmental issues concerning land. It discusses the relationship between the human person and land and how land can be protected as it is being used for different activities. The chapter draws insights from the African understanding of land, Church Social Teaching and the Holy Scriptures.

Learning Outcomes

At the end of this chapter the learners should be able to:

1. Describe the importance of land and its relationship with the human person and natural habitat in the light of an African theological perspective.
2. Identify land destruction and its effects on human life, wild life and natural resources.
3. Actively apply various techniques of land conservation within their parishes and beyond.
4. Lobby the government on land conservation and urge implementation and enforcement of legal mechanisms to regulate the proper use of land.
5. Participate in land conservation ventures such as tree-planting, control of land pollution such as dumping of waste and hazardous materials.
Genesis 1:28-30: God intends the land to be a blessing to man who He made to be the steward of the Earth. He entrusted human beings to take care of the land. Genesis 2: 15-17: It is land that is meant to provide food, shelter and other needs for people.

**What is Land?**

Land is defined as a solid part of the surface of the Earth which is distinguished from water. On it we find pastures, woods and shelter. It is basically the real home of human beings. The term “land includes all physical elements in the wealth of a nation bestowed by nature, such as climate, environment, fields, forests, minerals, mountains, lakes, streams, seas, and animals.” Its use touches the whole of human existence because people rely on land for their daily lives. Land is a place where people are to serve God and live by what it produces as shown in the book of Genesis 3:17 where man should rely on what land produces.

**Exercise 1**

*Why is land important? (Discuss in groups)*

Land is important because our lives and future depends on it. Human life depends on what can be grown on soil. From land we get plants, animals, water and minerals. We need land for agriculture and industry. It is the main source of our wealth and livelihood.

**Activity: Enumerate some uses of land and see if they are found in the list below.**

Shelter/building homes, apartments etc, for residential purposes; agricultural purposes such as crop farming and pastoral/ranching activities (relating to shepherds or herdsmen or devoted to raising sheep or cattle); tourism industry (land as a natural habitat for flora and fauna); mining/extraction, vegetation, forestry/outputs; construction of infrastructure/  

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for road, railway transportation; industrial purposes/ building factories, companies, business premises.

**African Understanding of Land**

The importance of land to Africans is explained not by its economic value, but more by its “spiritual” importance. Elizabeth Colson (1971) argues that Africans conceive of land as a sacred object “which exists independently of men.” She identifies two striking aspects of the African land: the physical or material Earth and the spiritual (invisible, cultural, traditional and ritualistic) aspects of the land.”

The land and all it contains is sacred and in many African families the umbilical cord of a new born baby is buried in the ancestral land to show connectedness with Mother Earth. One Agikuyu elder said, “Land is a sign of identity in the Agikuyu community. God gave it to the Gikuyu ancestor so that he may use it for his well-being and for the community’s well-being. That is why the placenta is buried into the soil to connect the new born with God and his or her ancestors. Nobody is allowed to play with land.”

Land is a birthright of every indigenous African. It has a communal dimension. The entire community is expected to share its resources under some form of traditional authority. The community leader is considered a steward with divine authority over land.

Africans believe that land is a gift from God. They value it as a source of livelihood. The land produces food and water, which give life to all living things. The Earth provides grass, other plants and water on which their livestock depend for survival. The Earth provides the water and air which keep human beings alive and provides them with materials for house-building and shade; energy for food preparation and other uses; utensils (guards, bowls, etc.); sacred plants (oreteti), used for meetings, rituals and medicines.8

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In some communities when a boy is circumcised, the foreskin and blood is also buried. ‘The sacredness of land in Africa is further linked to the fact that the ancestors are buried in it.’

Africans have a strong connection with the land not only as an economic resource, but as a home, a place of sacrifice and offerings. When traditional African people struggled or fought for land, they were not simply struggling or fighting for it economically but for social, moral and religious motives.

Since land was strongly connected to life, traditional African people had a moral responsibility to take care of it. Land bound people together in one community. Its absence threatened to tear them apart. This was because for many Africans, land was communal property. Land belonged to the community and God allotted it to the community through the ancestors. Land was respected because it produced plants, which sustain human life.

Traditional Africans attached great value to land because they considered it as a gift from God. ‘. It had religious significance and was therefore sacred. That is why the Agikuyu used soil in swearing rituals. Some traditional Agikuyu oaths were administered by the practice of people biting some soil and swearing to be bound by the terms of the oaths. Mau Mau fighters are said to have died while holding a fistful of soil. Almost every traditional African setting or community has what they revere or hold sacred either as the presence of their gods or goddesses; there is a very important symbolic reason attached to such objects. For the African, land and soil are very important for human existence depends on it. No wonder Mandela said:

Each one of us is intimately attached to the soil of this beautiful country. Each time one of us touches the soil of this land, we feel a sense of personal renewal. We are moved by a sense of joy and exhilaration when the grass turns green and the flowers bloom. That spiritual and physical oneness we all share with this common homeland.

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Social Teaching of the Church on Land

The Church’s social teaching is that the person is the steward of all creation. God destined the Earth and all it contains for all people and nations so that all created things would be shared fairly by all humankind under the guidance of justice tempered by charity.\(^\text{10}\)

Humankind is a land-related being, created from the dust of the land or the ground (Genesis 2:7); therefore, his survival and livelihood depends on land. “Farm owners and farm workers are the immediate stewards of the natural resources required to produce the food that is necessary to sustain life. These resources must be understood as gifts of a generous God.”\(^\text{11}\)

Care for the land is divine and must be exercised with respect. That is why God entrusted human beings to take care of the land (Genesis 1: 28-30). It is important that God’s will be sought as people interact with the land. To care for land is to worship God. God intends that land be a blessing to man who He made to be the steward of the Earth. God values creation.

“Farming God’s Way” is a Christian approach to farming that is rooted in biblical teachings and based on sustainable agricultural methods. It starts from the idea that God was the first farmer and calls on His followers to care for the land faithfully. Farmers who have been trained in Farming God’s Way appreciate how this approach helps to restore degraded land and protects the environment, while also increasing crop yields. Farming God’s Way can transform land and lives and bring about a new message of hope through improved sustainable agricultural practice.

**Activity:** Brainstorm on one way that you believe creation is not being well stewarded. Think about both the causes and effects.

\(^{10}\) Church in the Modern World, no 57.
\(^{11}\) Economic Justice for All, no 34.
For an issue like land degradation (tree trunk), the immediate causes (shallow roots) would be soil erosion due to wind or rainwater. The deeper roots (root causes) for land degradation would, however, include: overgrazing and bad farming practices which in turn are due to ignorance or insensitivity towards the needs of nature. The manifestations (branches and fruits) of land degradation could include reduced yields, famine, conflicts over food, etc.

**Land Issues that are of Concern to the Church**

Generally, man has exploited land so much that the extent of degradation is quite severe. There are quite a number of issues that affect land and its protection due to human activities. Some of these issues are enumerated below.

**Land Degradation**

Degradation is the weakening or deterioration of the state of the land. It leaves the resource either useless for agriculture or reduces its value for other development purposes. With or without the impact of human activities, some ecosystems degrade over time to the point where they cannot support life. Things like landslides, earthquakes, tsunamis, hurricanes, and wildfires can completely destroy local plant and animal communities to the point where they can no longer function. This can occur through physical destruction via natural disaster or by the long-term degradation of resources by the introduction of an alien species to a new habitat.

**Soil Erosion**

Soil erosion is the wearing (draining) of fertile soil or topsoil caused by overgrazing, wind, and water. This is the main cause of deserts and
arid (dry) lands which are not conducive for agricultural activities, resulting in low food production in some African countries and consequently high food prices.

Eroded soils tend to be light and lack the proper nutrients required to nurture crops and produce bumper harvests. This occurs through two major agents, water and wind. The major causes include deforestation, lack of crop rotation, changing of courses of water bodies, mechanical development such as construction, overgrazing, treading and siltation.

Deforestation leads to soil erosion (Photo by Stefan Gara)

To control soil erosion there is a need to plant trees where there are none (afforestation) and to replace those which have been cut down (re-afforestation). Other anti-erosion measures are to terrace land and protect water bodies, crop rotation, mulching, construct gabions, farm along contours and zero grazing. For control of soil erosion caused by wind, solutions include construction of windbreaks, afforestation and re-afforestation, crop rotation, mulching and zero grazing. Growing crops of a leguminous nature enrich the soil, making it heavy and difficult to be carried away by wind.

Soil Pollution

This refers to poisoning of, or damaging, the soil. It is another form of land degradation. Soil can be polluted through dumping of chemical wastes and other wastes such as metals and plastics, burning of vegetation which destroys micro organisms in the soil, salinisation and acid rain, and poor sewage disposal.
Soil pollution can be controlled by proper waste disposal or management, proper manufacturing processes, reduction, reuse and recycling, following statutory and regulatory requirements, liming and organic farming.

**Land Fragmentation**

This is the division of land which generally happens because of subdivision for inheritance purposes and overpopulation, for example in Kisii in western Kenya. Families find themselves having to sub-divide huge tracks of land into smaller pieces, which are then allotted to children or sold. Other causes of land fragmentation are poor policies for subdivision and registration of land, the economic situation of families, culture and urbanisation.

To control land fragmentation, there is a need to develop policies and regulations which ensure land is not sub-divided into small chunks that eventually become unusable. Also, people should be encouraged to remain in rural homes instead of migrating to urban areas. Another helpful measure is to educate people about care for the land.

**Mining and Excavation**

Mining and excavation is the removal of minerals from the ground or other materials such as stones for construction or the act of extracting ores or coal, and drilling for fossil fuels; oil and gas. It also includes removal of sand from riverbeds that encourage soil erosion through siltation.
This can be controlled by ensuring that there are proper policies and regulations to manage mining and excavation industries. Land can be reclaimed after these processes have taken place by ensuring that strategies for reclamation are developed before the processes begin. Reclaimed land can be used as nature centres. Mining and excavation firms could practice social responsibility that will ensure that this land is managed properly once mining and excavation processes are completed.

Fracking

Closely relating to mining and the extracting industry is the practice of fracking. Also known as hydraulic fracturing, this is the process of extracting natural gas from shale rock layers deep within the Earth. Fracking makes it possible to produce natural gas extraction in shale plates that were once unreachable with conventional technologies. It involves the injection of highly pressurized fracking fluids into the shale area. This creates new channels within the rock from which natural gas is extracted at higher than traditional rates. This drilling process can take up to a month, while the drilling teams dig more than a mile into the Earth’s surface. After that, the well is cased with cement to ensure groundwater protection, and the shale is hydraulically fractured with water and other fracking fluids. However, chemicals used in the fracking fluids have been known to seep right into the fresh water table, affecting water sources for both consumption and irrigation.\(^\text{12}\)

Botswana has for years been quietly granting oil and gas concessions in remote areas and has only recently admitted to having allowed fracking in “remote areas.” Similar activity is taking place in South Africa close to the border with Zimbabwe.\(^\text{13}\) Recently Pope Francis was seen expressing solidarity with anti fracking activists. Given its effect on the poorest in the world, the Pope opposed shale gas fracking and the contamination of water due to mega mine projects. He posed for two photographs: one


with a t-shirt that states, “Water is worth more than gold: El Agua Vale mas que el Oro”, and the other stating “No to Fracking.”

Concrete Jungles

This is an area in a city with large modern buildings that is perceived as dangerous and unpleasant. Concrete jungles are a by-product of uncontrolled or little planning and development and where little attention is paid to providing green spaces. These are found in big cities like Nairobi, Mombasa, and Kisumu in Kenya and Dar es Salaam in Tanzania. Over the past century, around 60% of the world’s wetlands have been cleared to make way for urban development and agricultural activities.

Buildings that have come as a result of cleared vegetation (Photo by Pelican)
To control this, developers should be encouraged to ensure that vegetation is planted at the foot of the building. This would ensure that in cities and towns, there would be enough vegetation. In addition, authorities should plan for parks within such areas.

**Church’s Pastoral Action (Ecclesial Action)**

The faithful should be encouraged to engage in the conservation of land for it is critical to provide proper agricultural land in rural communities as well as green spaces for healthy citizens and to protect water sources from pollution. The Church should thus engage her members in protecting and conserving land. This is possible through the Church’s teachings where individuals can learn responsibility towards the land and what the Lord expects of them.

*Planting trees in Uganda (top left) and Kenya (top right). Photos by ARC.*
The Church should teach people to appreciate the connectedness between man and land given that man was made out of soil (“From dust you came and dust you will return,” Genesis 3:19) and that overgrazing affects the green layer of land and interferes with the connectedness between man and land. That is because once the land loses its vegetation and becomes a desert, people are forced to leave it. Education on land conservation should take place at all levels to ensure that our environment does not become impossible to live in.

**National Level**

The Church should lobby the government to ensure that planning strategies are put in place to mainstream conservation. It is also the role of the Church to come up with policies that prevent land degradation.

Environmental policies should aim at minimising soil disturbance; enhancing and maintaining organic matter cover on the soil surface; using crops, cover crops and crop residues such as mulching; diversification of species through rotation of crops and animal grazing and fallowing of land; taking positive action to protect land subdivision. These land conservation strategies will make the soil firm and prevent it from further exposure erosion.

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**A Biblical Perspective on Land Stewardship by Eugene Loh**

*The Bible opens with an account of creation and immediately turns to stewardship, to God’s entrusting of creation to humanity. In Genesis 2, God created Adam and Eve, a “suitable helper.” Why a helper? Because they had work to do. They were called to work Eden and take care of it (Genesis 2.15). Often, discussion of Genesis is clouded by debates of whether to understand the text literally or allegorically. Either way, however, the message is clear: God called humanity to be custodians of the Earth. After “the Fall” Adam and Eve were banished from Eden. Curses were pronounced on the*

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14 [http://www.progress.org/bible03.htm](http://www.progress.org/bible03.htm) as at December 2, 2013. Eugene Loh has a doctorate in physics and now works in the computer industry. He lives in Monterey County, California.
three actors, Adam, Eve, and the serpent, in Genesis 3. Adam’s curse was that he would only eat the fruits of creation through toil. It describes an antagonistic relationship between mankind and Earth as a natural consequence of humanity’s sin, a recurrent theme throughout the Bible. Consider also the phrase, “Cursed is the ground because of you” and imagine pictures of smokestacks, clear-cut forests, and landfills. Creation is an innocent victim of humanity’s sin.

The term “Torah” refers to different things. The word is Hebrew for “law” and often is taken to mean the first five books of the Bible, the Books of Moses. Much of the Torah is a “priestly manual”, epitomized by the book of Leviticus. It talks a lot about Jewish ritualistic law, describing sacrifices and offerings, holy days, kosher practices, and so on. Thus, many people view it as arcane, but it has some very interesting things to say about land use.

Land is implicitly and explicitly personified. Laws providing for justice and championing the oppressed also applied to land. For example, the Sabbath laws, that called for rest on seventh days and seventh years, applied to households, animals, resident aliens, and the land (Exodus 20.10, 23.10-11, 25.4-5).

Leviticus 26 is a wonderful chapter that speaks rather poetically about the natural ramifications of obeying -- or disregarding -- God’s law and, like Genesis 3, ties obedience to God with relationship to land. One might almost imagine an addition to the Beatitudes, “Blessed is the land that is polluted, for God will redeem it from your sickening abuse.”

The chapter talks about the rewards of following God’s decrees. In particular, it paints a picture of harmony between humanity and the land, with the land providing both abundant crops and sanctuary. (Leviticus 26.4-6). In contrast, rebellion will result in enmity between mankind and the land.

The people who turn away from God will be persecuted and afflicted, but “the land will rest and enjoy its Sabbaths” (Leviticus 26.34-35). Not only will the land no longer be a safe haven, it will actually “devour” its former oppressors (Leviticus 26.38). I imagine “the land” sipping drinks by the pool, making
up for lost time, while polluters are tormented in Hades. (See also 2 Samuel 21.1-14, especially the first and last verses, and 2 Chronicles 7.13-14. The state of the land is a sign of our state with God.)

Land was not so much a commodity. Rather, it was an inheritance for the Israelites and it was core to the covenantal promises that God made to them. God’s people are not to abuse their inheritance, but to treasure it. It cannot be bought and sold (Leviticus 25).

Actually, the land could be bought and sold, but every fifty years, it reverted to its “owners” or “inheritors.” What term to use is problematic, because we are inclined to use labels that imply dominance over the land. Instead, Leviticus 25.23 proves helpful: “The land must not be sold permanently, because the land is mine [God’s] and you are but aliens and my tenants.” This verse clearly assumes that mankind is a custodian or caretaker of land. The land was a promise to Abraham (e.g., Genesis 12.7, but really throughout the Bible).

The “promised land”, a “land flowing with milk and honey” (Exodus 3.17), figures promi-}

ently in Jewish thinking (e.g., Psalms 137.1-6, Ezekiel 36.24) and Christian metaphor (e.g., Revelation 21.1). It is “home.” Moses, the great prophet, longed even just to see the Promised Land, as if it were a glimpse of heaven. (Deuteronomy 34)

Abusing the land is like chopping the leg on which you stand. The people of the Bible were invariably farmers, vintners, shepherds. They did not “mine” the land and so deplete it. Rather, they relied on the land as a sustaining resource, year after year.

Numbers 35.33-34 has an interesting nuance. It reads, “Do not pollute the land where you are... Do not defile the land where you live and where I [God] dwell.” It seems like the environmentalist’s dream verse.

Well, actually, the “pollution” and “defilement” refer to ritualistic abuse (committing sins, like murders, on the land), but I think this helps make the case: God’s people are called to treat the land as holy. Worship of God means nurturing the land even more than tending a church building.

These references are not isolated texts. Rather, they illustrate themes that run throughout the Bible.
Theological Reflection

In the discussion on land the four pastoral dimensions of the church’s action will be the basis of the reflection namely koinonia (communion), diakonia (service to God), martyria (witness) and leiturgia (worship/sense of the sacred).

C Communion

How does land affect the life of the community and their relationships (Koinonia)? Think of land pollution, soil degradation, felling of trees, burning of trees and other vegetation. How do these activities affect the life of humans who depend on natural resources for their survival? When medicinal trees can no longer be found, certain plants no longer flower or specific birds no longer fly, how does this affect community?

S Service

How does the creation of deserts through felling of trees, poor methods of farming and soil degradation relate to service and the meeting of basic needs? Are they done for the sake of serving humanity? If land promotes community, then its proper use must be in the service of community. Individuals must develop a spirituality of witness to the proper use of land. I am because we are and therefore I need to have the others in mind as I use the land.

This is possible through conservation practices such as Farming God’s Way, planting variety of trees/vegetation, mulching. Since vegetation has a responsibility of providing food, shelter and medicine to humanity, it needs to be protected to continue giving that service.
The Sense of the Sacred and Witness

God is the owner of the universe. He created it and it belongs to Him. He is ruler of not only the heavens but also the Earth, which includes the land. In the African perspective, creation is ordinarily a reflection of the sacred, and if we fail to appreciate this we can destroy creation at will. We have sacred trees and forests which were used for worship and animals that were taken as totems. As we take care of the land and all that it contains, we partake in the creative work of God. We are to use land for the good of all and with respect to the Creator.

Any human act freely undertaken that affects the land negatively is immoral, even if it is the act of buying (CV 66). The human exercise of freedom to produce and consume has moral implications. An African is aware that every action has consequences to the individual and the community. This is moral responsibility.

The practice of protection and sensitivity to land and all it contains should become a way of life. How can the individual, the community, the consumer and producer, conduct their affairs in a manner that is sensitive to care and protection of the land? The African went to the forest to hunt for dry twigs but did not cut down fresh trees for firewood or charcoal. This was to ensure that the trees are protected. Compare this with the current practices where people cut down green trees for charcoal or firewood.
Pastoral Action

The Church should raise peoples’ awareness of the value of land and the importance of conserving it. Awareness education can be done through seminars, workshops and meetings.

- The Church should organise Liturgical celebrations that bless the land and other habitats. It should set aside days for the celebration of agro ecological practices.
- It should prepare and disseminate appropriate recommendations for the sustainable use of the farming ecosystem.
- It could promote green parishes and sub-parishes. Parishes should adopt agro-ecological practices.
- It could promote the culture of sharing land instead of grabbing and fighting over it.

We must, as Christians, learn to respect the sacredness of land and create responsible stewardship by educating people on how to treat this important resource.

Activities/Assignments

In groups, reflect on the following questions:

1. Explain the relationship between land and the human person.
2. Discuss some effects of land pollution. List some ways people can take care of land.
3. What mining or extractive activities are taking place in your area and how are they impacting on land?
4. What farming practices and/or animal husbandry techniques are destructive to land?
5. How can farmers in your community grow food in such a way that the soil remains usable by future generations?

In this chapter, we have discussed the value of land in daily life. In addition we have demonstrated that in his freedom and love, God gave people land to settle and use it for development. This shows that God is the source of land and we must see it as God’s precious gift. He created land and sustains it for his glory.
Stewardship of God’s Creation

We acknowledge God as Creator of Heaven and Earth. Without the Creator, creation is meaningless. It is impossible to separate land from its Creator just as it is difficult to separate dance from dancer. This relationship must also be reflected in people’s lives. In fact human relationships must be a shadow of the inner divine relationship in the Trinity. Thus triune relationship in the work of creation must also be emphasised when accessing creation. This means that the relationship and communion that exists between God the Father, God the Son and God the Holy Spirit is shared with man who is created in God’s image and likeness.

Because all that God created is good, man ought to relate to creation including land in a manner that expresses gratitude and respect to the creator. It is therefore worth noting that care for creation has a theological implication in that creation has value in itself because it reveals God, participates in our redemption, and that human beings are dependent on it but are also responsible for it.15

Some Quotations to Help us Cherish the Land

We did not inherit this land from our fathers. We are borrowing it from our children – Amish Proverb.

Man thinks of himself as a creator instead of a user, and this delusion is robbing him, not only of his natural heritage, but perhaps of his future – Helen Hoover, American author.

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect – Aldo Leopold, American environmentalist.

I am worried about the wounds and bleeding sores on the naked body of the Earth. Have we not seen the long-term effects of these bleeding sores? The famine? The poverty? We are responsible, directly or indirectly. We are strangling the Earth – Wangari Maathai, founder of Kenya’s Green Belt Movement and 2004 Nobel Peace Prize winner.

The nation that destroys its soil, destroys itself – Franklin Delano Roosevelt, US president, 1933-1945.

If a man cheats the land, the land will cheat his belly – Chinese Proverb.

15 http://www.catholic.ew.org.uk/content/download4096/28059/file/CallofCreation_CB-CEW_CAFOD.pdf
Chapter One: Land: A Gift From God To Humanity

Whole Class Discussion:

What quotations do you have in your culture concerning land?
Chapter 2

WATER: SOURCE OF LIFE

General Introduction

This chapter focuses on the importance and value of water from the African and Christian perspectives. It deals with threats to water and also provides a theological reflection with suggestions on practical and pastoral actions that could help protect the quality and quantity of water.

Learning Outcomes

At the end of this chapter students should be able to:

1. Understand the theological, Biblical and creational foundations of water as God’s gift for life.
2. Appreciate the African understanding of water as a source of life.
3. Identify the ever-growing challenges of water scarcity and pollution locally and devise holistic ways for the care and preservation of this crucial resource.
4. Bring students to a deeper awareness and understanding of the present day threats and danger facing water quality, quantity and sustainability.
5. Apply pastoral skills and alternative techniques in responding to environmental life threats and practices against water quality, quantity, availability and sustainability.
6. Make personal life choices consistent with critical consumption and in solidarity with those facing water stress.
Activities

1. List the daily uses of water.
2. Discuss the use of water in liturgy.

Genesis 1:20-22: “And God said, ‘Let the waters bring forth swarms of living creatures, and let birds fly above the Earth across the dome of the sky.’ So God created the great sea monsters and every living creature that moves, of every kind, with which the waters swarm, and every winged bird of every kind. And God saw that it was good. God blessed them, saying, ‘Be fruitful and multiply and fill the waters in the seas, and let birds multiply on the Earth’.”

John 7: 37-38: Jesus stood and said in a loud voice, “Let anyone who is thirsty come to me and drink. Whoever believes in me, as Scripture has said, rivers of living water will flow from within them.”

Facts and Issues on Water

Clean water is a necessity for life and a prosperous community. We need clean water for survival. The changing climate patterns are threatening key sources of water we rely on. These sources are also tainted with pollution. Dirty and contaminated water threatens both the quality of life and public life in Africa and worldwide. Water from the rivers is contaminated by toxic chemicals, dirt, trash and organisms that carry diseases along the way. Much of the water in Africa lacks basic laws of protection and is vulnerable to pollution from factories, industrial plants and other similar activities. This leads to people drinking contaminated water which affects health and the quality of human life. Fish, birds and wildlife which depend on clean water are also affected.

Access to water: More than 240 million people (most of them in rural areas) are expected to be without access to an improved water source by 2050. The Millennium Development Goal for improved water supply is unlikely to be met in sub-Saharan Africa. Globally, more city dwellers did not have access to an improved water source in 2008 than in 1990, as urbanization is currently outpacing connections to water infrastructure.
Water-related disasters: By 2050, the number of people at risk from floods, droughts and other water related disasters may rise from 1.2 billion today to around 1.6 billion (18% of the world’s population).

Increasing water stress: Increased water demand will worsen water stress in many river basins, in particular in densely populated areas in rapidly developing economies. More river basins are projected to come under severe water stress by 2050. According to international studies, in the developed world it takes on average 15,000 litres of water per year to remove the human waste of each person (35 kilos of excrement and 500 litres of urine).

Bottled water: “Approximately 25% of bottled water is merely tap water and according to tests carried out in the USA by the Natural Resources Defence Council (NRDC), it violated, in at least one sample, an enforceable standard or exceeded microbiological-purity guidelines.”

The water bottling industry profits from the sale of this common resource at the expense of the environment. Pumping can dry out springs, destroy habitats, devastate ecosystems, and drain aquifers. Plastics are now the fastest growing sector of the waste stream and presently take up more than 25% of the volume of materials sent to landfills every year.

In Africa and East Africa in particular (Kenya, Uganda, Tanzania, Rwanda and Burundi) huge numbers of people without clean water suffer from multiple water borne diseases particularly cholera, diarrhoea, typhoid etc. Conflict for pastures and water among pastoral communities in Kenya, Uganda, and Tanzania etc. are commonplace today. Food productivity and sovereignty are increasingly affected by environmental degradation such as water pollution, from toxic waste, oil tankers, industrial activities, sewage and spills. This has led to extinction and massive destruction of biodiversity locally and globally.

There has been a decrease of water levels in many of East African lakes and rivers such as Lake Turkana, Lake Victoria, Lake Manyara, Lake

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16 OECD, 2012.
18 Water for All Campaign, Public Citizen (www.citizen.org/cmep/water).
19 Ibid.
Kivu and the Athi, Kagera and Nile rivers. This has led to diminished marine and estuarine biodiversity and a rise in water-related environmental hazards. This is often due to increased industrial processing plants and activities (e.g. textile mills, breweries, chemical plants, construction industries) located along great rivers (e.g. Tana, Athi) and lakes.

**Water Pollution**

![Image of polluted water](image1.png)

*Above: Polluted water from a leather tannery enters a river (Photo by Magnus Franklin)*

*Left: River pollution in Kibera, Nairobi (Photo by Christine Olsen)*

Water pollution involves any contaminated water, whether from chemical or bacterial matter, that degrades the water’s quality and purity. Water pollution can occur in oceans, rivers, lakes, and underground reservoirs, and as different water sources flow together the pollution can spread.

**Activity:** Discuss in groups some causes of water pollution.

**Causes of water pollution:** These include increased sediment from soil erosion, improper waste disposal and littering, leaching of soil pollution into water supplies, organic material decay in water supplies. The effects of water pollution include decreasing the quantity of drinkable water available, lowering water supplies for crop irrigation, and impacting fish and wildlife populations that require water of a certain purity for survival.
Industrial wastes: Industrial activities cause huge water pollution. These come mainly from sulphur, asbestos, lead, mercury, nitrates, phosphates and oils.

Sewage and waste water: Everyday, we cook, do laundry, flush the toilet, wash our cars, shower and do many things that use water. Think about how we use water in schools, hospitals and public places. Where do you think all the water, liquid waste, toilet and urine ends up? In many developed communities, all this water and soluble waste (called sewage) is treated, cleaned and dumped into the sea.

Septic tanks: Every domestic (home) toilet is connected to a septic tank usually located outside the house. Biological processes are used to break down the solids while the liquid is usually drained out into a land drainage system. From this stage, it can escape into the soil and nearly water bodies.

Ocean and marine dumping: Again, think of the rubbish we all make each day: paper waste, food waste, plastic, rubber, metallic and aluminium waste. In some countries, these are deposited into the sea.

Oil pollution: Routine shipping, run-offs and dumping of oils on the ocean surfaces happen every day. Oil spills cause major problems, and can be extremely harmful to local marine wildlife such as fish, birds and
sea otters and other aquatic life. Because oil does not dissolve, it stays on the water surface and suffocates fish. Oil also gets caught in the feathers of sea birds stopping them from flying. Some animals die as a result.

**Underground storage and tube leakages:** Many liquid products (petroleum products) are stored in metal and steel tubes underground. Other sewage systems run in underground tubes. Over time, they rust and begin to leak. If that happens, they contaminate the soils and the liquids in them end up in many nearby water bodies.\(^\text{20}\)

**The Effects of Water Pollution**

The effects of water pollution include poisonous drinking water and poisonous food animals. Pollution also causes the death of aquatic animals. Dead fish, crabs, birds and sea gulls, dolphins, and many other animals often wind up on beaches, killed by pollutants in their habitat.

**Disruption of food chains:** Pollution disrupts the natural food chain as well. Pollutants such as lead and cadmium are eaten by tiny animals. Later, these animals are consumed by fish and shellfish, and the food chain continues to be disrupted at all higher levels.

**Diseases:** Eventually, humans are affected by this process as well. People can get diseases such as hepatitis by eating seafood that has been poisoned. In many poor nations, there is always outbreak of cholera and diseases as a result of poor drinking water treatment from contaminated waters.

**Destruction of ecosystems:** Ecosystems (the interaction of living things in a place, depending on each other for life) can be severely changed or destroyed by water pollution. Many areas are now being affected by careless human pollution, and this pollution is coming back to hurt humans in many ways.

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Activity: Can you think of some other effects that water pollution is having in your area?

African Understanding of Water

Water is sacred to many cultures. Africans use water for rituals such as the washing of the newborn and the dead. It is a key element in cultural ceremonies and religious rites. It must not be heated or boiled, or treated with chemicals as that would kill the spirit in it.

Many African ethnic groups regarded water as a symbol of life. “Watering places were approached with respect. Most of the water sources belonged to the whole community. Nobody was allowed to cultivate around these places. Trees were not cut and vegetation was tended to ensure that water was not disturbed. To protect the places and the water from being polluted, many myths, taboos, proverbs, idioms and riddles were formulated to make people aware that those places had to be protected.”21

Church Social Teaching on Water

Water binds the community together for it is a source of life; this is why all sources of water are fully protected. Human life depends on water in the form of rainfall, rivers, and streams; water takes on a life of its own. It is the basis for human dignity and quality of life. We read this is in the Bible. It is life, for which human beings thirst desperately and without which the land cannot bear fruit (Isaiah 55:1, 10-11).

Speaking to the Samaritan woman (John 4:7-15), Jesus uses the image of water as indispensable to life then points to the ‘living water’ through which he offers eternal life. Water is a source of life as explained in the Gospel of John 3:5 in the words of Jesus, “Very truly, I tell you, no one can enter the kingdom of God without being born of water and Spirit.”

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Water is a sacred gift and a central symbol in all religions, indispensable for human existence. Protection of water is a community’s responsibility and it promotes peace in and among peoples “which would also provide greater protection for nature.”

The search and demand for resources, especially water, “can generate serious conflicts among the peoples involved. Peaceful agreements about the use of resources can protect nature and, at the same time, the well-being of the societies concerned.”

Access to water is a universal and unalienable right for all. “The right to water, as all human rights, finds its basis in human dignity and not in any kind of quantitative assessment that considers water merely as an economic good. Without water, life is threatened. Therefore the right to safe drinking water is a universal and inalienable right.” It is therefore necessary to cultivate a public conscience that considers food and access to water as universal rights of all human beings, without distinction or discrimination.

Water is a common good for the entire human family and should be used for the good of all. According to the Catholic Social Teaching elements such as water that are so central to human life are for everyone. They are essentially gifts of creation and therefore must never be reduced to marketable commercial products denied to those unable to pay. In his message for the World Day of Peace 2010, Pope Benedict XVI said that “the Church has a responsibility towards creation, and she considers it her duty to exercise that responsibility in public life, in order to protect Earth, water and air as gifts of God the Creator meant for everyone, and above all to save mankind from the danger of self-destruction.”

Water is a public good that must be protected and therefore “it is the task of the State to provide for the defence and preservation of common goods such as the natural and human environments, which cannot be safeguarded simply by market forces.”

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22 Caritas in Veritate, no 27a.
23 Caritas in Veritate, no 27b.
25 Caritas in Veritate, no 27.
26 Benedict XVI, World Day of Peace 2010 (If you want to Cultivate Peace, Protect Creation).
27 Centesimus Annus, no 40.
By its very nature, water cannot be treated as just another commodity among many, and it must be used rationally and in solidarity with others. If water distribution is entrusted to the private sector, it should still be considered a public good.” There is need to ensure that “a balance is maintained between ensuring that water for basic human needs is available to the poor and that, where it is used for production or other beneficial use, it is properly and appropriately valued.”

**Water in the Bible**

During the early centuries of their existence in Palestine, the Jewish people never succeeded in occupying the seashore. They were not a people of the beach and sea. The sea with its waves and mysterious depths frightened them.

The people lived more in the central highlands and depended for water on the rain and springs. Water falls from on high, from heaven, on rainy days. In the springs, water comes from below, from the Earth. Besides, no matter what direction one takes, locally or far away, it is certain that one will meet water, in the sea. Water exists above, beneath and to the side.

Starting from this empirical observation, they drew up the image of creation. On the second day, God separated the waters, that above and that below, and created space. On the third day, here below, God separated the dry land from the flooded land and made the land appear. The very beautiful poetry in Psalms 104 describes how God succeeded in mastering the water and putting it at the service of life. Before occupying the land in the 13th century before Christ, the people were nomads, who roamed the desert and found life in the springs in the middle of the desert. Jesus is the Good Shepherd that leads his sheep to the springs of eternal life (Ps. 23, Jn 10).

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28 Compendium of the Church Social Teaching, no 485.
When the monarchy fell in 587 BC and the traditional signs of the presence of God, the temple, possession of the land, sacrifices, priesthood and Jerusalem, were destroyed, many said: “God has abandoned us and forgotten about us.” But Jeremiah replied: “God has not forgotten! God has not broken the alliance with us!” – “How do you know this?” they asked. “Because the rain continues to fall in due time, the rivers continue to flow towards the sea, irrigating the land...” (cf. Jeremiah 31, 35-37; 33, 19-26).

Water is good for purifying, for quenching thirst, irrigating plants, swimming, for refreshing, preparing food, and many other purposes. It is impossible to live without water. The Samaritan woman drew water from the well to quench her thirst every day. Speaking with Jesus, she discovered another spring, within herself, gushing with eternal life (Jn 4,14).

“Happy the person who... finds pleasure in the Law of the Lord and murmurs God’s law day and night. That person is like a tree that is planted by water streams, yielding its fruit in season, its leaves never fading, success attends all they do” (Ps 1).

**Scripture Resources**

Some texts that speak about water and their symbolism include:

- John 7:37-39, the promise of living water.
- John 4:7-14, the water of life in the conversation with the Samaritan woman.
- Ezekiel 47:1-12, the beautiful vision of water that flows from the temple irrigating everything.
- Apocalypse 7:17, the lamb that leads by springs of living water.
- Apocalypse, 22:2, the river that flows from the New Paradise generating life in all parts.
- Genesis 2:10-13, the river of terrestrial Paradise that generates the 4 great rivers of the world.
Theological Reflection

In this chapter, the reflection will be based on the four pastoral dimensions of the church’s action, namely koinonia (communion), diakonia (service to God), martyria (witness) and leiturgia (worship/sense of the sacred) from the African perspective and inspired by the Scriptures.

C Communion

Water is a community builder. Thus, its scarcity has a bearing on the break up (dividing) of the community if there is no proper understanding and sharing of this precious gift. Communities have to work hard to make sure that there is enough water for all. Water should always bring people together. Water has to promote unity, not discord. Why should water become a source of discord rather than a source of unity? Why do we sell water which is a God-given gift to be used by humanity and all created beings? Does water make us live as a community?

From the African perspective, water has five fundamental aspects, namely, life centeredness, sacredness, interconnectedness, earth centeredness and community centeredness. How do we promote all this as we use water in our lives?

S Service

Water serves humanity in various ways: drinking, cooking, bathing and cleansing. Do we respect and protect the sources of water. How do we help our people to use this resource sparingly?

SW The Sense of the Sacred and Witness

Water has always had a religious connotation. How do we use water in our religious celebrations? Do we still have respect for water and use it for purification? Is it used in search of holiness? Do we see it as a source of, and nourishment of, life? Think about the waters of baptism and how God has used water to bring new life. Water purifies the iniquities of
the world and brings life to humanity as expressed in Ezekiel 36:25: “I will sprinkle clean water upon you, and you shall be clean from all your uncleanness, and from all your idols I will cleanse you.”

Water brings new life, as John 4:10-14, emphasises: “Jesus answered her, ‘If you knew the gift of God and who it is that asks you for a drink, you would have asked him and he would have given you living water’.” As well as symbolising new life, water is used in the symbolism of Jesus’ baptism as God’s revelation (John 1:31-33). Water brings healing of people’s illnesses (John 5:1-9 & 9: 1-14), Revelation 22:17: “Let anyone who wishes take the water of life as a gift.”

**Activity:** Discuss how use of water can be either a cause of conflicts or peace in your region.

**Pastoral Action**

Dealing with water pollution is something that we all (including parishes, governments and local councils) need to get involved in. Here are a few things you can do to help. Learning about the issue is the first important step to take.

The basic pastoral activities which constitute the action of the Church could reflect any of the following: evangelisation, catechesis, liturgy, and the celebration of what we stand for (spirituality). There is need to raise people’s awareness on the value of water, including its faith importance, its natural uses, and the importance of conserving it.

♦ Christians should be encouraged to take responsibility by engaging their politicians on different ways of protecting and conserving water and its sources.

♦ Discuss how the Church can engage its people to collectively care for water as an expression of their faith.

♦ Propose liturgical celebrations that bless water sources and water ways. Set aside days for the celebration of water.

♦ Prepare and disseminate appropriate recommendations for sustainable use of water resources.
Stewardship of God’s Creation

- Enforce water harvesting: efforts to undercut siltation must be scaled up. Harvested water should be treated and distributed.
- Revisit the curriculum in schools especially in the fields of religious education, geography, home economics and other social studies within the Church to encourage awareness about water and its use and protection.
- Promote water education at parish /diocesan levels and encourage and water conservation projects as role models.
- Begin church/diocesan projects for water stewardship and embark on best practices.
- Introduce re-afforestation projects and tree-planting as well as competitions, songs, poems, bonanzas, fiestas, ceremonies in every church and diocese.
- Prepare Sunday homilies on water preservation.
- Launch collaborative efforts on water preservation and quality assurance, from the family to community levels, with faith-based organisations as well as NGOs and government authorities.
- Never throw rubbish away carelessly. Always look for the correct waste bin. If there is none around, take it home and put it in your trash can. This includes places like the beach, riverside and water bodies.
- Use water wisely. Do not keep the tap running when not in use. Also, you can reduce the amount of water you use in washing and bathing. If we all do this, we can significantly prevent water shortages and reduce the amount of dirty water that needs treatment.
- Do not throw chemicals, oils, paints and medicines down the sink or in the toilet. In many cities, your local environment office can help with the disposal of medicines and chemicals. Check with your local authorities if there is a chemical disposal plan for local residents.
- Buy more environmentally-friendly cleaning liquids for use at home and other public places. They are less harmful to the environment.
- If you use chemicals and pesticides for your gardens and farms, be mindful not to overuse them. This will reduce runoffs of the material into nearby water sources. Start looking at options of composting and using organic manure instead.
If you live close to a water body, plant lots of trees and flowers around your home, so that when it rains, chemicals from your home do not easily drain into the water.

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**Poems on Water**

*The Stream Where I Played As a Child*

*I played in this stream as a child.*
*When the ravine seemed so endless and wild*
*The water was clear and smelled so clean.*
*It was long ago that it seems like a dream.*

*Now this stream is too dirty for my child,*
*the water is scummy and smells vile.*
*The place where I played seems so foul and decayed,*
*and I shed the first tears as the dream starts to fade*

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**Perspective on Pollution**

*Rainbow colors on the water’s surface*
*Look so beautiful when you see them up close.*
*But step back from that rainbow and you will see*
*It’s really an ugly oil slick fouling a once pristine shore*

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31 Kelly Roper. Available at http://greenliving.lovetoknow.com/Poems_About_Pollution
Introduction

This chapter explains the variety of God’s creation and how each relies on the other. Biodiversity and its role, the importance of ecology and threats to biodiversity are given prominence. It also focuses on the place of the human person in biodiversity, including lifestyles choices and practices which destroy or build nature. In addition, we focus on the duty of the human person in the protection of creation and African theological views on biodiversity and caring for nature.

Learning Outcomes

By the end of this chapter, the participants should be able to:
1. Explain the essence and importance of biodiversity.
2. Illustrate the magnitude of the threats to biodiversity
3. Relate human practices and lifestyle choices to biodiversity loss.
4. Devise means for biodiversity protection in their communities.
5. Contrast good and bad practices relating to biodiversity.
6. Justify their positions on biodiversity from both Catholic teaching and their Africa teachings and heritage.
Activities to set the Scene

1. Name the varieties of plants, animals, insects and water creatures etc.
2. What is the connection between the mentioned creatures?
3. Explain some of the ways the human person protects or destroys life?
4. What does Creation mean to you?

What is Biodiversity?

The term ‘biodiversity’ is short for biological diversity. It describes the variety of life found on Earth and all natural processes. It means the number, abundance or variety of plants, animals and other living creatures in a particular area, and includes ecosystem, genetic and cultural diversity, and the connections between these and all species.

Biodiversity is an Important Part of Our Faith

Canticle of Daniel: Dan 3:57 ff

O all you works of the Lord, O bless the Lord. To him be glory and praise for ever. And you, angels of the Lord, O bless the Lord. To him be glory and praise for ever.

“...and all that He created was good...”  
“...He is the Lord of all creation...visible and invisible...”

After creating the heavens, the sea, the Earth and all it contains, God created man and woman and God saw everything that he had made, and behold, it was very good (Genesis 1:31). God entrusted the whole of creation to the man and woman. As God’s creation, there is need to live in harmony. The natural wonders of creation provide humanity with sources of recreation, opportunities for leisure and relaxation, and
grounds for reflection, without which human life would be spiritually and culturally impoverished.\textsuperscript{32}

**Facts and Issues on Biodiversity**

All creatures, living and non living, are interdependent and interrelated. The human person is deeply related to and dependent on other creatures and is therefore integral to the whole of creation. By virtue of his creation, the human person has a unique responsibility over all other created beings. He must protect biodiversity. St. Francis of Assisi, for example, preached universal brotherhood and sisterhood with all creation (brother son, brother wolf, sister moon, sister water etc).

\textit{Praised be You my Lord with all Your creatures especially Sir Brother Sun}
\textit{Who is the day through whom You give us light…}

\textit{Praised be You, my Lord, through Sister Moon and the stars,}
\textit{In the heavens you have made them bright, precious and fair.}
\textit{(St Francis, Canticle of the Creatures)}

Biodiversity is for life – extinction is forever!\textsuperscript{33}There are possibly as many as 10 to 100 million different, distinct life forms or species on our planet.\textsuperscript{34} Rich biodiversity is an essential ingredient for the network of life. It acts as a shock absorber to deal with multiple changes, some of which are natural but at present increasingly human induced. Species loss weakens natural systems and their ability to cope with unexpected change. Anything that affects the integrity of one species will ultimately affect all species, including humans.


\textsuperscript{33} 10 simple steps to halt biodiversity loss at http://www.envhealth.org/IMG/pdf/-Green_10_biodiversity_May2006.pdf

Tropical forests are among the world’s richest areas in biodiversity. Both forests and land are under threat and yet both tropical and temperate forests act as reservoirs (pool, tank) for atmospheric carbon dioxide. However, at present deforestation and forest degradation actually generate at least 15% of global carbon dioxide emissions. It is estimated that there are 75,000 edible plants in the world, with the majority found in rainforests; yet the vast majority of humans are dependent on just 200 species of plants and animals.\(^\text{35}\)

Thousands of plants have the potential for future cures of a host of diseases and yet less than 1% of the 250,000 tropical plants, many now endangered, have been screened for their pharmaceutical potential.

A Time magazine article in 2000 raised the following question: ‘How long will Earth be a hospitable place for humanity when it is no longer a fit home for our next of kin?’ This reflection already suggests that the human person relies a lot on nature and therefore has a responsibility to take care of it because of the benefits it has on the life of the human person and the society.

**Definitions**

*Biodiversity* is the degree of variation of life forms within a given species, ecosystem biome, or planet.

*Ecosystem* is a community of living things and their non-living environment, and may be as large as a desert or as small as a pond. The living creatures (organisms) in an ecosystem can be described as producers, consumers and decomposers. Producers are the green plants, which make their own food through the process of photosynthesis. Consumers are animals who get their energy by eating other organisms: herbivores eat plants, carnivores eat herbivores or other carnivores, and omnivores eat both plants and animals.

Decomposers (including bacteria, fungi, and some plants and animals) break down dead plants and animals into organic materials that go back

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into the soil.\textsuperscript{36} Ecosystems sustain life-supporting functions and produce natural capital like biomass production (food, fuel, fiber and medicine), the regulation of climate, global biogeochemical cycles, water filtration, soil formation, erosion control, flood protection and many other natural features of scientific, historical, economic, or intrinsic value.\textsuperscript{37}

\textit{Ecology} deals with the relations of organisms to one another and to their physical surroundings. Human ecology is the study of the interaction of people with their environment. Ecology seeks to explain:

\begin{itemize}
  \item Life processes, interactions and adaptations
  \item The movement of materials and energy through living communities
  \item The development of ecosystems, and
  \item The abundance and distribution of organisms and biodiversity in the context of the environment.
\end{itemize}


\textsuperscript{37} Cf. Wikipedia, 10/9/2013.
**Activity:** Which animals are found where you live? Share with the other participants in the group. Mention the plants you see growing where you live.

What is their value/importance? Describe the activities that are involved in the figure above (diagram of a simple ecosystem) and how these activities affect your life and that of other creatures.
African Teaching on Biodiversity

African tradition teaches that biodiversity is sacred and should be protected. Among the Mijikenda\(^{38}\) of Kenya, cutting of trees and destruction of vegetation around sacred sites was prohibited in an attempt to preserve the surroundings. This included collecting or removing dead logs or twigs or any other forest material. Uncommon animals, particularly large snakes, were to be left alone if encountered. Any structures built for ritual purposes used materials from the Kaya\(^{39}\) forest. One kept to the traditional paths and avoided wandering freely in the forest to avoid trampling on vegetation and disturbing the land.

Biodiversity was used as a totem and this led to the protection and conservation of the different animals and plants. A totem is an animal, a plant or any other natural object believed to be ancestorly related to a tribe, clan, family or group of people as a tutelary spirit (Mariko, 1981). Totems are found among different clans and tribes in various African communities. For example, in Zimbabwe, the Shona people have 25 different totems,

For Dagba, Sambe and Shomkey (2013), the Tiv\(^{40}\) People of Central Nigeria have at least 18 totems of which 11 are animal-based while four are plant-based; three are sites. They provide full protection of totems within their territory and therefore the plant and animal totems in the area are less threatened compared to other useful local species.

African traditional religion is connected with the environment because a healthy environment is seen to enhance life. For the African, the environment is part of life. The Africans view the human person as part

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\(^{38}\) “Mijikenda” literally means **nine homes or nine homesteads (in Swahili)**, referring to the common ancestry of the Mijikenda people. The nine Mijikenda sub-tribes, which include the Girima, Digo, **Chonyi, Duruma, Jibana, Kambe, Kauma, Rabai and Ribe**, are believed to be nine different homes of the same tribe. Each sub-tribe speaks its own dialect of the Mijikenda language.

\(^{39}\) Kaya are sacred forest for the Mijikenda; they believe their gods dwell there.

\(^{40}\) The Tiv are also known as the Mitshi, Munchi, or Munshi. They are found in the northern provinces of Nigeria, with the majority of them living in the Tiv Division of Benue Province. The Tiv are primarily dependent on agriculture for subsistence. They practice hoe cultivation, crop rotation, and fallowing. The major crops are yams, sorghum, and bulrush millet.
of the environment. The environment, to an African, means a whole life. Therefore everybody in traditional African culture had a religious and moral responsibility towards the environment. They knew that to destroy the environment meant to destroy the human person.

*Photo by William Warby*

In traditional African societies, many people believed that trees and forests were a manifestation of the power of the Supreme Being. They saw trees and forests as ideal places to meet God. Traditional African societies had many shrines, which were associated with big trees such as fig trees and baobabs. These trees together with the vegetation around them were preserved as sacred places for worship.

Traditional Agikuyu regarded trees, shrubs, grass and forests as valuable gifts from God. They respected big trees, especially the můgumo (fig tree) as a place to meet God. Thus, sacrifices and offerings were done under the můgumo tree. Until today, it is a taboo to cut a můgumo tree because it is a sacred tree. The Chagga41 are not much different from the Agikuyu as far as respect for sacred trees is concerned. They associated

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41 The Chagga ethnic group is Bantu-speaking indigenous Africans and one of the largest ethnic groups in Tanzania. They live on the southern and eastern slopes of Mount Kilimanjaro and Mount Meru, also in the Moshi area.
extraordinary trees with God. They had a great deal of respect for these trees and no one was allowed to cut them or to collect firewood from the dry branches of these trees. Under these trees, people worshipped and offered sacrifices. They called these places ‘kiungu or ‘kitasioni’ (places for offering sacrifices). For them, trees and the shrubs around the trees were also regarded as sacred. This attitude preserved the trees, vegetation and ecology.

Africans did not attach importance to trees and herbs just for spiritual purposes, but also because trees, herbs and plants in general were seen to be useful in enhancing human life. Apart from being symbols of God’s presence among people, trees were seen as medicine to man and animals. Trees, leaves, roots and grasses provided herbal medicines to human beings and to wild as well as domestic animals.

Apart from providing shade for various social gatherings, trees are also used by the Maasai\textsuperscript{42} for some purification ceremonies and rituals. The community protects trees used for this purpose. The wood, bark and leaves of trees may be used in naipok, certain purification ceremonies, to avert supernatural misfortune. Trees and shrubs are thus good and their special ritual value is closely associated with certain notions of Maasai cosmology.

The Chagga of Tanzania used trees in rituals and reconciliation ceremonies. A green leaf from the Isale (dracaena tree) accompanies every sacrifice. Isale is a tree with green leaves, which are used even today in all rituals, ceremony blessings and on other occasions, which may involve forgiveness, requests and reconciliation. If one has a grudge with somebody, he/she can simply take Isale leaf to the offender and then he/she is immediately forgiven. Even today in Chagga land, Masaale\textsuperscript{43} trees

\textsuperscript{42} The Maasai are a tribe who live in parts of Tanzania and Kenya. They are known as tall and fierce warriors. They can be recognised by the special red cloth they wear which is called a “Shuka” (Swahili). The Maasai live a nomadic life, moving from place to place with their animals. They rely on their animals for food (including milk, meat and animal blood) and walk for many miles with their animals to find fresh pasture and water.

\textsuperscript{43} Masaale trees are special trees that are seen as sacred by the Chagga people (Tanzania) and are used in various ceremonies.
are preserved and respected. They are used in ordination, marriage, birth, initiation and graduation ceremonies.

In order to preserve trees, shrubs, grass and vegetation in general, several strong taboos against cutting certain useful and sacred trees or destroying the vegetation were drawn up in traditional African societies. Among the Akamba44 medicinal plants were not harvested by uprooting the whole plant, but by removing a small fraction of the roots, bark or leaves so as to let a plant survive for further use by the community. Safeguarding the plants was a community responsibility. It was held that if one cut some of these trees, he or she would bleed to death. Traditional African societies held that because of the religious, physical, and cultural value of trees, shrubs and vegetation, the community had a moral obligation to preserve them.

Traditional African societies also viewed animals as creatures of God. That is why many myths and stories use animals as main characters. They were respected as part of the whole creation. Some ethnic groups believed that fierce wild animals such as lions, leopards, buffalos, and elephants were manifestations of the great power of God. Therefore, they would not kill them.

Some totemic beliefs and taboos helped in the preservation of some animal species. For example, the Ngoni people of Zimbabwe were named after animals and were not allowed to kill or eat meat from animals and birds they were named after. They considered themselves to be bound together by not eating the animals. They respected them, an attitude that helped preserve the animals. The Bukusu tribe of Kenya believed that Wele (God) forbid them to eat all animals that crawl, for instance, snakes, lizards and snails. They were also not to eat scavenger birds, like crows, vultures and hawks. They were supposed to eat four-legged animals, slaughtered after asking permission from the ancestors and God as the owner of all animals. All these traditions helped to protect and preserve many species and the environment in general.

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44 The Akamba people are part of the Central Bantu linguistic group found in Kangundo, Kibwezi, Kitui, Machakos, Makueni and Mwingi Districts in south eastern Kenya. The area inhabited by the Akamba is called Ukambani (Akambaland).
Church Social Teaching on Biodiversity

Caring for the Earth is a requirement of our faith. We are called to protect people and the planet, living our faith in relationship with all of God’s Creation. We show our respect for the Creator by our stewardship of Creation.

Human society depends on the health of ecosystems and biodiversity. “Ecosystem services” are the benefits to human society from the environment. Clean water, fertile soil and pollination of native and agricultural plants result from the service of creatures in their ecological niches. Wetlands and forests clean water. Wood and paper depend on forest health. Marine fisheries depend on clean coasts and oceans.

The Catechism of the Catholic Church teaches us to respect the integrity of creation in the seventh commandment (cf. no 2415). Animals, like plants and inanimate beings, are by nature destined for the common good of past, present, and future humanity. Use of the mineral, vegetable, and animal resources of the universe cannot be divorced from respect for moral responsibilities.

We need to respect biodiversity for “dominion over inanimate and other living beings granted by the Creator is not absolute; it is limited by concerns for the quality of life of [one’s] neighbour, including generations to come; it requires a religious respect for the integrity of creation”45. God destined the Earth and all it contains for… all peoples so that all created things would be shared fairly by all.46

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45 Catechism of the Catholic Church, 2415.
46 Cf. Pope Paul VI, Pastoral Constitution on the Church in the Modern World, no 69.
CHAPTER TWO: Water: Source of Life


Biodiversity is a reflection of God. As Pope Benedict said, we should aim ”at strengthening that covenant between human beings and the environment, which should mirror the creative love of God, from whom we come and towards whom we are journeying.”

Each creature possesses its own particular goodness and perfection, as the Catechism of the Catholic Church says: ”Each of the various creatures, willed in its own being, reflects in its own way a ray of God’s infinite wisdom and goodness. Man must therefore respect the particular goodness of every creature, to avoid any disordered use of things which would be in contempt of the Creator and would bring disastrous consequences for human beings and their environment.”

All creation is called to give praise to God. Ecological destruction and the loss of biodiversity obscure our ability to see and experience God; they are an affront to the Creator.

Biodiversity Issues that concern Humanity

Habitat Destruction and Species Extinction

Rich biodiversity is an essential ingredient for the network of life and yet some species are threatened with extinction either because of

47 Pope Benedict XVI, Caritas in Veritate, 50.
48 Cf. The Catechism of the Catholic Church, no. 339.
human activity or natural reasons. Species loss weakens natural systems and their ability to cope with unexpected change. Anything that affects the integrity of one species will ultimately affect all species, including humans. Tropical forests are among the world’s richest areas in biodiversity. Both forests and land are under threat and yet both tropical and temperate forests act as a reservoir of biodiversity.

**Pollution**

Here is an example of the cycle of pollution. If you pollute the Nairobi river, many different types of organisms are killed. The clean air is also polluted through dumping chemicals. This affects human health, particularly harming those who live close by.

This interferes with God’s creation which was ordered by the God Creator referred to in Genesis 1 & 2 and creates an imbalance in nature or creation. God mandated the human person to maintain creation, not to destroy it.

**Threats to Food Security**

Loss of biodiversity also affects the food we eat. The variety of natural and organic plants found around the world feed both animals and humans. The diversity of natural materials provide an abundance of ingredients for beverages such as tea, cocoa, tea and ginger.

Most medicines are derived from natural ingredients, most specifically plants such as aloe vera, neem, avocado, rosemary. Many antibiotics are also derived from living micro-organisms such as bacteria and fungi. Building materials such as rubber, oil, certain types of fibres, dyes and adhesives all come from natural origins.

Biodiversity has agro-ecological value. Many biological processes that involve an interaction of various species are agro-ecologically useful to human beings. Some plants, when intercropped with others, protect each other from pests or improve soil nutrition for better production of other species, e.g., legumes (beans).

**Activity:** Discuss how biodiversity affects human beings.
**Why is Biodiversity important in an Ecosystem?**

All living beings on this planet depend on each other for survival, and the importance of biodiversity revolves around this very fact. Extinction of a single animal species tends to put immense pressure on several other species which are dependent on it.

There are several examples of disturbances in the food chain triggered by extinction of animals. When the apex predator of the food chain (a carnivorous animal) becomes extinct, the population of the secondary consumers (which are herbivores in most cases) tends to increase. This increase in the number of herbivores, in turn, puts pressure on the vegetation, and the lack of vegetation affects the precipitation pattern, thus, resulting in desertification of this region. In order to avoid such implications on the planet, we need to make sure that the right balance is maintained.

**Biodiversity and Human Society**

Other than being the most intelligent species on the planet, humanity is also the most dependent. While getting its needs from biodiversity, knowingly and unknowingly, man has caused great harm to our surroundings. There are several ‘ifs’ when it comes to the importance of biodiversity for us. If it were not for nitrogen fixing bacteria, we would have never been able to grow crops! If all the apex predators are killed as a result of excessive hunting and poaching, herbivores will clear the green cover on the planet, thus, leaving us devoid of water! If all the forests are wiped out, wild animals will have no option but to encroach upon our territory!

All these ‘ifs’ boil down to one simple thing – we are digging our own grave if we damage biodiversity. We need to understand that however much we try, nature will always be a step ahead of us, and every time we try to alter it, the backlash will be felt in some form.
Activity 2.3

In groups of at least three participants, create a simple food chain and describe how each animal depends on the other.

What natural resources or species are particularly important to your community? What role do they play in your identity and cultural traditions?

What customary laws, values, or social norms influence your relationship with these resources?

How do you determine who uses the resources?

How do you determine how, when, and for what purposes they are used?
How to preserve Biodiversity

*Distinguish between need and greed*

Man is driven by either his need or greed. The greed of mankind has taken a toll on the environment. Many species of plants and animals have fallen prey to this greed. There are several products made from plants and animals. Before buying such products, ask yourself: do I really need them? By using only the products that you need, you will reduce the demand for several animal and plant products, which will eventually save numerous species of plants and animals.

*Go for the green products*

There are various companies which use a manufacturing process that does not harm the environment. Choose these products. This will motivate other companies to implement environmentally friendly techniques to the production of their products. Encourage organic farmers by buying fruits and vegetables from them.

*Avoid invasive species*

People want their garden to be unique, so they prefer exotic species like trees and plants in their garden, and thus neglect the native species. Your favourite exotic species may turn out to be invasive, and might hinder the growth of the native species. In order to preserve biodiversity, it is important that you promote the growth of native species. Invasive species are not restricted to plants; invasive species of animals may also become dominant, thus resulting in the decline of the native species of animals.

*Try to minimise pollution*

The alarming rate of global warming will eventually result in climate change, which might make it difficult for certain endemic species to survive in their natural habitat and this may result in their extinction. So it is essential to try avoiding any activity which directly or indirectly increases global warming, or results in any damage to plants and animals (aquatic, terrestrial, etc).
**Critical and purposive consumption**

People in charge of developing menus, buying foodstuffs or agriculture should make conscious choices in favour of variety. If one chooses to buy beans, then have different types of beans served on the table.

**Activity:** Enumerate other ways of preserving biodiversity

**Theological Reflection**

In the discussion on biodiversity the four pastoral dimensions of the Church’s action will be the basis of the reflection, namely *koinonia* (communion), *diakonia* (service to God), *martyria* (witness) and *leiturgia* (worship/sense of the sacred) from the African perspective.

**Communion**

How does biodiversity affect the community (*koinonia*)? Does loss of biodiversity affect relationships in society?

Think of the way humanity keeps on felling trees, burning forests, draining water and extracting minerals and leaving the land open and the effect these have on people’s livelihoods. When medicinal trees can no longer be found, certain plants no longer flower or specific birds no longer fly, how does this affect our community?

The African Christian understanding of communion is *cosmotheandric.* This means that human relationships are understood as including God and creation. The idea of the neighbour in Africa, *oikos,* actually makes ecology a part of the household; this asserts that we are all integral to creation.

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50 Cosmotheandrian means that human beings are understood in relation to God and the earth.
Service

The question we ask here is how the loss of biodiversity relates to service and the meeting of basic needs. Are our production practices in line with serving God? How service-oriented are our consumption patterns, the choices we make in what we produce, how we produce and how we consume?

All these ought to be consistent with service to God and all creatures. If all these are devoid of the divine force then it may be a disservice. Our tendency in Africa to consume the varieties of food as season and weather allow at a particular moment is actually a service to biodiversity and the community.

The Sense of the Sacred and Witness

In the African perspective, creation is ordinarily a reflection of the sacred, and if we do not hold onto this, then we can destroy creation at will. The increasing level of secularism leads us to underestimate the value of creation. As we work in production are we still co-workers with God? When we co-create, we guarantee sustainability. Are we the criteria of what is good? In Africa, planting, harvesting and eating are all sacred and this approach attaches importance to biodiversity.

Africans have always gone beyond themselves and believed that individual actions had to keep in mind both the sacred and the neighbour (including creation) and how both might be affected by our behaviour and choices. Biodiversity calls for a thought about future generations. The individual ought to think beyond themselves to see the future. The African view that unnatural conduct by one person brings a bad omen to all should influence how we think about biodiversity. We are human because we are related to others. ‘Others’ includes creation. Human dignity is affirmed in relationships.⁵¹ St. Theresa of Avilla weighed the

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⁵¹ Cf. Gaudium et Spes (1965), no 22-25.
level of human relationships in all her religious communities by the way they took care of their gardens.

In addition, creation in the image and likeness of God requires that our motives are in line with God’s will for creation. We are spiritual because we are human. Traditional African belief is that all is spiritual. However, technological practices today attempt to separate the spiritual from all we do and give room for abusive exploitation of creation and loss of biodiversity, leading ultimately to destruction.

The human act has an object, intention and circumstances. Any human act freely undertaken that has the effect of increasing the loss of biodiversity is actually immoral, including the act of buying.\(^5\) The human exercise of freedom to produce and consume has moral implications. The problem of biodiversity is a human problem and thus a moral one. Moral because the loss of biodiversity is partly the result of human actions, decisions and attitudes.

For example, when an investment decision is made by a given firm, the purpose of this action, the intention and circumstances have to be properly weighed for their moral implications. Would an African consciously take a decision to produce or extract in a manner that has immoral implications? How much grass was needed for the building of the “Masiro”\(^5\) the question would then be was the extraction of this grass destructive to the habitats of other species?

We proceed with responsibility for anything that may happen. An African is aware that every action comes with consequences to the individual and community. This is moral responsibility. The *ubuntu* philosophy is loaded with solidarity with all around us. The philosophy explains what it means to be truly human and the belief in a universal bond of sharing that connects all humanity. Scripture calls us to be our brother’s keeper and stewards of creation. Francis of Assisi also proclaims the universal brotherhood or the fraternal *cosmovision*.


\(^5\) The masiro are burial sites for Buganda kings. The Baganda are an ethnic group of Bantu descent in Uganda.
Pastoral Action

- Raise peoples’ awareness of the value of biodiversity, including its faith importance, natural uses and the need to conserve it, through seminars, workshops and meetings.
- Organise liturgical celebrations that bless known ecosystems and habitats, etc. Set aside days for the celebration of agro-ecological practices.
- Prepare and disseminate appropriate recommendations for sustainable use of the farming ecosystem.
- Promote green parishes and sub-parishes; promote adoption of agro-ecological practices in parishes.
- Promote eco-spirituality which is the humble way of caring for the Earth. It is the area where modern ecology and the resources of the spirit overlap and cry out for all of us to abandon behaviours that are destructive of the natural world and to transform our attitudes towards the Earth.

Other Activities

1. In groups compile a list of plants, animals, and insects, etc, that have become rare. (Things you used to see but can no longer see.) Then find out the reason for the disappearances of the listed species.
2. Name plants with medicinal properties. How common are these plants? Is there a person in your community who is practicing herbal medicine? Where do they collect the herbs from …with what else?
3. Discuss how you could grow maize or any other food in a manner that is high yielding but not destructive to other species through use of artificial fertilisers, herbicides or pesticides.
Glimpse of a Polluted Future

Where are the birds that used to dot the sky?
They’re not here anymore, and I have to wonder why.

Where are the fish that used to swim in this stream?
I can’t see them anymore. What does that mean?

Where are the frogs that used to croak around this lake?
I can’t hear them anymore. There must be some mistake.

I wish there was a clock whose hands I could rewind.
We might have saved these creatures if we’d just had more time.

Time to make people see how we’re damaging our Earth,
Time to realize what it all was truly worth.

But the animals are disappearing at an alarming rate.
If we don’t finally band together, it may really be too late.\(^{54}\)

\(^{54}\) Kelly Roper. Available on http://greenliving.lovetoknow.com/Poems_About_Pollution
CHAPTER 4

OTHER NATURAL RESOURCES AND ENERGY

Introduction
This chapter identifies and explains the different natural resources that serve as sources of energy as well as the challenges facing natural resources. It also looks the Church’s social teaching on extractives and the conservation of natural resources. An understanding of different ways of conserving natural resources and energy which are environment friendly and in line with the teaching of the Church are equally explored.

Learning Outcomes
By the end of this chapter the participants should be able to:
1. Outline the different categories of natural resources in their country.
2. Explain the challenges facing the extractive mineral industry for energy in their country.
3. Appreciate and apply the teaching of Church on natural resources and energy.
4. Describe different ways of conserving natural resources and energy.

Activities to set the scene:
1. Identify some of the natural resources found in your region.
2. Explain the sources of energy in your region.
3. Describe three activities that can destroy natural resources.
4. Identify some day-to-day activities and choices that can conserve energy.
An Overview of Natural Resources

Natural resources are to be used for the good of humanity and that is why Exodus 27:20 talks about bringing “clear oil of pressed olives for the light so that the lamps may be kept burning.” This is why the Church appeals for respect, protection and care for both renewable and non-renewable resources.

A natural resource is anything people use that comes from nature and is not made by human beings. Natural resources range from rivers to mountains, precious stones and minerals. The Earth is abundant with resources, such as air, water, oil, wind energy, wood and coal. These can be classified as renewable and non-renewable resources.

Renewable resources are those that can be produced again, for example, plants and animals. Non-renewable resources are those which cannot be produced again, for example, fossil fuels. These are exhaustible and need to be used carefully to leave enough for future generations. These natural resources are used as sources of power.

Water, for instance, is needed for the production of energy of all types. This means that any expansion of energy supply will affect water resources. Water must therefore be used with great care. The search for fuel in Africa leads to deforestation and cutting down of trees and yet there are so many alternative sources of energy.

Renewable Natural Resources (Sources of Power)

Wind power (Photo by Mike Baird)
Chapter Four: Other Natural Resources and Energy

Solar panels on the roof of the Vatican, Rome (Photo by Vatican Office)

Tropical rain forest (Photo by Frank Vassen)

Women carrying firewood (Photo by David Stanley)
In most African countries, the biggest source of energy is wood. This can have serious impacts on the ecosystem. In Kenya, for example, in 2000, fuel wood supplied 89% of rural energy needs while charcoal provided 87% of urban energy needs.\textsuperscript{55} In Tanzania “to meet current biomass demands, people are forced to over-harvest existing natural resources, leading to an annual deforestation rate of around 412,000 hectares with negative impact to climate change.”\textsuperscript{56}


\textsuperscript{56} Bariki, Kaale, Tanzania forest conservation expert http://in2eastafrica.net/tanzania-needs-600000mw-to-replace-firewood-expert/
In Uganda, 91% of the total energy used is derived from biomass, which includes firewood and charcoal. This has led to fears that the pressure on forests and woodlands there could easily wipe out the country’s capacity to provide the resource. In Malawi, biomass contributes 90% of total primary energy consumption. All this calls upon us to rethink how we can harness energy in a better way and use renewable resources instead.

**Threats to Natural Resources that are of concern to Humanity**

- *Exploitation of natural resources:* The unsustainable exploitation of non-renewable mineral resources leads to the commercialization of mineral resources to benefit only the wealthy. This will present the next generation with a huge problem.

- *Destruction and extinction of soil, fauna and flora:* Examples of this include unsustainable use of wood for fuel and charcoal, leading to deforestation and desertification, and soil degradation due to over grazing or poor farming practices. All of these affect biodiversity and ecosystems, which in turn has a negative impact on the climate.

- *Lack of in-depth and profound analysis of short-term and long-term use of natural resources:* This leads to an increased destruction of landscape, deforestation and air, water, sound pollution, both locally and globally.

- *Technology:* Due to increased technology, rates of deforestation have increased massively. An increase in the sophistication of technology has enabled natural resources to be extracted quickly and efficiently. For example, in the past, it could take long hours just to cut down one tree using saws.

- *An extreme self-centred view towards creation:* This is expressed in a lack of foresight or sustainable life-view, locally and globally as well as by the growth and spread of a consumerist culture. Materialistic views lead to the mining of gold and diamonds to produce jewelry and unnecessary commodities for human life or advancement.

Stewardship of God’s Creation

- Disappearance of earth caring values and indigenous environmental spiritualities, environmental-theologies and environmental ethics.
- Irresponsible stewardship and management mentality worldwide and abuse of power and leadership roles
- Lack of committed leadership on environmental stewardship at all levels which leads to mismanagement of natural resources and minerals by ministries, leaders and government officials.
- Excessive demand often leads to conflicts due to intense competition

Organisations such as Global Witness and the United Nations have documented the connection.

What are some of the problems that arise from the exploitation of natural resources?

Possible answers: deforestation, desertification, extinction of species, forced soil erosion, oil depletion, ozone depletion, green house gas increase, extreme energy, water pollution, natural hazards and disaster, and extinction of minerals among others.

Activity: Discuss other problems that may arise as a result of over exploitation of natural resources

Devise, in groups of three, other possible ways that can be used to conserve these resources

Tips for Conserving Energy

- Always switch off appliances when not in use.
- Make sure your house is properly insulated so as to keep heat loss to a minimum.
- Efficient use of energy is achieved by running appliances to their maximum capacity. Hence, stock the refrigerator with food, fill the dishwasher with plates and don’t run the washing machine unless it is full.
- Air conditioning units should be set in the shade, so that they consume less power.
Work manually wherever possible.
Limit your use of cars. Opt for public transport if possible.
Reduce reliance on conventional energy sources and explore renewable sources like solar energy, tidal energy or wind energy.
Energy conservation problems can be solved only by collective efforts at the domestic as well as industrial levels. Hence, consider it your responsibility to judiciously use energy, so as to save it for the future.\(^{58}\)

What other ways can you suggest energy could be conserved?
Discuss other problems that you think are associated with energy

African Understanding of Natural Resources

Africans have always revered natural resources, believing that some of these are home to the deities and that destroying them can be catastrophic. The different forms of energy, including water, solar energy, wood and coal, were revered and brought people together. Energy was therefore linked to other factors that define the human person. Fire always brought people together and was used for cooking while the sun was used to dry skins and food stuffs.

People who prayed to the sun recognized this source of energy as supernatural. Water was also seen as the source of life and was revered and its sources were protected such that trees near the water source were not even felled. Water was used for religious rituals and for purification, hence could never be misused.

Some trees were used for worship and people offered sacrifices under certain trees in thick forests, especially on mountains. This was a way of respecting nature. Some other plants and animals were used as totems, hence they were revered and preserved. There were also some stones which were known to have divine power; people were not allowed to go near them for fear of punishment.

All these beliefs promoted care, protection and respect for natural resources and this preserved them for future generations.

\(^{58}\) http://www.buzzle.com/articles/conservation-of-natural-resources.html
Church Social Teaching on Natural Resources

According to Pope John Paul II, “World Peace is threatened not only by the arms race, regional conflict, and continued injustices… but also by lack of due respect for nature, by the plundering of natural resources…” It is therefore important to ensure that natural resources improve people’s life and are shared by all. These resources should promote peace. If natural resources are shared, peace and justice is promoted locally and globally. As such humans have the responsibility to care for the Earth, and ensure just and equitable sharing of its resources so that people can live in dignity. While emphasising the importance of care for natural resources, John Paul II reiterated that responsible use of natural resources and minerals in particular for all people is mandatory.

Natural resources are created by God for the good of humanity, as is made clear in verses such as Psalms 19:1-6 (“The heavens declare the glory of God; the skies proclaim the work of his hands”) and Psalms 102:25-26 (“In the beginning you laid the foundations of the earth, and the heavens are the work of your hands”). Other verses with a similar message include Lev 23:12-13, Gen 1:1-3, Job 38:24, Gen 7:1ff, Jeremiah 33:22, Jeremiah 10:13, Ecclesiastes 1:7, Amos 9:6, Is 45:18, Lev 11:33-36.

Since natural resources are linked to the glory of God through Jesus Christ, they should also be taken care of with reverence as seen in Luke 12: 42-48 (Cf. Col 1:15-20; Rev 4:11; Hebrews 11:3; I Cor 15: 20-28; Eph 1:3-10). Rev 4:11 expresses this glory of God where it says, “You are worthy, our Lord and God, to receive glory and honour and power, for you created all things, and by your will they were created and have their being.”

60 Cf. Leo XIII, Rerum Novarum (1891) and John XXIII, Quadragesimo Anno (1931).
62 The Constitution on the Church in the Modern World, Gaudium et Spes, no 69.
63 John Paul II, Redemptor Hominis (1979) and Laborem Excercens (1981).


Theological Reflection

Communion

How does use of natural resources and energy affect the community (koinonia)? Firewood collection, for example, has a community element to it. But firewood gatherers traditionally looked for dry twigs and did not cut down fresh forests for wood. The practice of planting entire plantations for fuel wood breaks down a sense of community. When medicinal trees can no longer be found, and specific trees are planted as mono species for firewood could be examined in the face of koinonia (community).

Service

The question we ask here is how do energy use and natural resources relate to service and the meeting of basic needs? The food we cook influences the energy choices we make in our households. What we choose to buy can also support destructive energy use. Governments, for example, have the option of promoting means of transport that are energy efficient.

The Sense of the Sacred and Witness

Creation is ordinarily a reflection of the divine. If we do not hold onto this, we can destroy creation at will. Today’s energy use requires us to think about the needs of future generations. The individual ought to rise above him/herself to envision the future. The African view that unnatural conduct by one brings a bad omen to all should influence our thoughts on energy conservation.

The practice of protection and sensitivity to natural resources should become a way of life. We should only consume what we need, not what we want. Ask yourself the question, ‘What way of life is consistent with the conservation and preservation of natural resources? How can the
individual, the community, the consumer and producer, conduct their affairs in a manner that respects and protects natural resources? How do we live our faith in a way that does not harm our natural resources and recognises the interrelatedness of all beings?’

Of course we have to boil beans but must we cut down trees to make charcoal? Traditionally the African went to the forest to hunt for dry twigs, not to cut down fresh trees for firewood or charcoal. J. S. Mbiti\textsuperscript{64} points out that everything we do has an impact spiritually. Discuss what traditional African practices and beliefs have to say to us today about our use of natural resources and our current consumerism.

**Activity:** Discuss how the distribution of resources can be either a cause of conflict or peace in your region.

Discuss how energy use can promote peaceful coexistence

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**Pastoral Action**

The Church needs to engage governments and those involved in issues of natural resources. Key to their involvement is the responsibility to transform old attitudes, lifestyles and bad habits which threaten natural resources. The Church should be at the forefront of exploring alternative renewable energy sources such as wind, solar, water or geothermal energy.

In all our engagements, the goals and values of respect, dignity, accountability, transparency, solidarity, sustainability and the universal purpose of created things must be re-emphasised for the authentic and integral development and transformation of the human person.

The Church should encourage new liturgical celebrations that make use of natural resources such as water, salt, oil, palm and other trees from which incense is made (kitungati – Kikamba, omuwafu – Luganda), and set aside days for the celebrations of seasons like rain and harvest.

\textsuperscript{64} John S. Mbiti is a renowned Traditional African Religions expert who has written heavily on African religion and philosophy.
CHAPTER FOUR: Other Natural Resources and Energy

Promote green parishes and sub-parishes. Parishes should adopt a culture of the right use of natural resources.

Energy-saving stoves could be used while alternatives to charcoal use are developed. African governments should take charge of the bargaining process in energy contracts with multinational corporations so that the interest of the local people is factored into these discussions.

The following poem takes a look at the pollution problem from a different angle

![Photo by Kim Seng](image)

**A Choking Sky**

Watching smoke stacks choke the sky  
Always makes me want to cry  
I just can’t help but wonder why  
The factories won’t even try  
To find a safer, better way  
To put their poisonous waste away⁶⁵

⁶⁵ Kelly Roper, at http://greenliving.lovetoknow.com/Poems_About_Pollution.
“Can we remain indifferent before the problems associated with such realities as climate change, desertification, the deterioration and loss of productivity in vast agricultural areas, the Pollution of rivers and aquifers, the loss of biodiversity, the increase of natural catastrophes and the deforestation of equatorial and tropical regions? Can we disregard the growing phenomenon of “environmental refugees”, people who are forced by the degradation of their natural habitat to forsake it – and often their possessions as well – in order to face the dangers and uncertainties of forced displacement? Can we remain impassive in the face of actual and potential conflicts involving access to natural resources? All these are issues with a profound impact on the exercise of human rights, such as the right to life, food, health and development” (Pope Benedict XVI, 2010 World Day of Peace Message).

Humans need to realise that there is no Planet B; there is but one, finite planet which we all call home. Thus, people everywhere should unlearn the destructive ideologies, attitudes and lifestyles which imperil all created beings, humans and non-humans of today and posterity. The Church and governments in Africa need to partner and spearhead a culture of solidarity, peace, accountability, transparency, care, empathy, reconciliation and agape with and for creation.

The foregoing chapters have all expressed how the African tradition is deeply rooted in the protection of life and dignity of the human person. Pope Benedict XVI in *Caritas in Veritate* says that the environment is God’s gift to everyone, and in our use of it we have a responsibility towards the poor, towards future generations and towards humanity as
a whole. It is for this reason that the Centre for Social Justice and Ethics has developed this toolkit, to ensure that future generations are accorded an opportunity to learn about environmental conservation from their formative years. This toolkit has provided sufficient material for agents of evangelisation to be able to disseminate the information.

From the discussions in the four chapters, it is apparent that the environmental crisis is a moral challenge. This handbook therefore calls upon its readers to examine how we use and share the goods of the earth, what we pass on to future generations and how we live in harmony with future generations.

The Centre for Social Justice and Ethics recommends the following practical ways in which the users of this toolkit across all dioceses and parishes within AMECEA can engage in environmental conservation;

♦ Education and sensitization to create awareness on matters of environmental preservation and conservation across all dioceses in AMECEA.

♦ Involvement in activities that will further efforts at conservation e.g. planting more trees that are environmentally friendly, encouraging recycling of water for uses such as watering plants and kitchen gardens.

♦ Use of alternative sources of energy such as use of biogas, solar energy and wind energy.

♦ Use of organic farming methods that do not pollute the soil and land rather than chemicals and herbicides that degrade the soil.

If these are done effectively and the lessons drawn from this toolkit understood and applied, we will have made a significant contribution towards conserving and protecting the environment the AMECEA region.
REFERENCES

Church Documents


References


Other Sources

Stewardship of God’s Creation


