

Biblical Perspectives on Environmental Stewardship and Their Relevance to Rwanda's Ecological Challenges

Laurent Ntaganda

Catholic University of Rwanda.

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Abstract — This study, entitled “Biblical Perspectives on Environmental Stewardship and Their Relevance to Rwanda’s Ecological Challenges,” examines how biblical teachings on creation and environmental stewardship can contribute to addressing contemporary ecological challenges in Rwanda. The study aims to explore the understanding of environmental stewardship among undergraduate students in the Faculty of Theology at the Catholic University of Rwanda and to assess the relevance of biblical principles to Rwanda’s environmental context. The study is guided by the research question: How can biblical perspectives on environmental stewardship contribute to addressing Rwanda’s ecological challenges? It hypothesizes that a stronger understanding of biblical teachings on creation and stewardship among theology students enhances their awareness of environmental responsibility and their willingness to engage in ecological conservation. The study employed a descriptive mixed-methods approach, combining biblical-theological analysis with empirical research. The target population consisted of 70 undergraduate students from the Faculty of Theology at the Catholic University of Rwanda, all of whom participated in the study. Data were collected through a structured questionnaire and complemented by brief open-ended questions. Quantitative data were analyzed using frequencies and percentages, while qualitative responses were examined thematically. The findings indicate that 87.1% of respondents regard environmental stewardship as an important Christian responsibility, while 81.4% believe that biblical teaching can contribute to environmental protection in Rwanda. Furthermore, 78.6% consider the Church’s role in environmental education important, and 74.3% express willingness to participate in environmental conservation initiatives. However, only 62.9% report having received substantial theological formation on environmental issues. The study concludes that biblical perspectives provide a strong theological foundation for promoting ecological awareness among theology students and strengthening the Church’s contribution to environmental stewardship in Rwanda.

Keywords: Biblical Environmental Stewardship; Creation Theology; Ecological Ethics; Environmental Conservation; Rwanda; Sustainable Development.

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1. Introduction

Environmental degradation has become one of the most pressing challenges facing contemporary societies, with consequences for ecosystems, livelihoods, food security, health, and sustainable development. Human activities such as excessive resource consumption, deforestation, inappropriate land use, and pollution have intensified ecological pressures and contributed to climate-related risks. Rockström et al. (2009) argue that human development must remain within ecological boundaries, while Beck (1992) demonstrates that environmental risks are closely connected to social and economic structures. Pope Francis (2015) further emphasizes that the ecological crisis is inseparable from the social crisis because environmental deterioration disproportionately affects vulnerable populations. From an anthropological perspective, Descola (2013) shows that relationships between human communities and nature are shaped by cultural values and social practices. These perspectives indicate that environmental protection requires not only technical solutions but also ethical, cultural, educational, and spiritual transformation.

Rwanda faces several environmental challenges, including soil erosion, land degradation, deforestation, biodiversity loss, wetland degradation, pollution, flooding, climate change, and increasing pressure on land resources. These challenges directly affect agricultural productivity, livelihoods, food security, and long-term development. Ostrom (1990) demonstrates the importance of collective action in managing natural resources, while Sen (1999) links sustainable development with human well-being and opportunities for future generations. ICT can also contribute to environmental monitoring, education, information sharing, and sustainable resource management (Hilty & Aebischer, 2015). However, policies and technological interventions alone cannot guarantee responsible environmental behavior if ecological responsibility is not supported by appropriate moral and cultural values.

The problematic addressed by this study is the insufficient integration of biblical and theological perspectives into environmental responsibility in Rwanda. The Bible contains important teachings concerning creation, stewardship, justice, moderation, and human responsibility (Gen. 1–2; Exod. 23:10–11; Lev. 25). Bauckham (2010) argues that biblical theology presents humanity as part of the wider community of creation, while Moltmann (1993) emphasizes the interconnectedness of God, humanity, and creation. Pope Francis (2015) calls for ecological conversion, and Kureethadam (2022) stresses the spiritual dimension of ecological responsibility. Nevertheless, these principles require greater integration into theological education and pastoral practice.

This study therefore examines Biblical Perspectives on Environmental Stewardship and Their Relevance to

Rwanda's Ecological Challenges, focusing on 70 undergraduate students in the Faculty of Theology at the Catholic University of Rwanda. It investigates how biblical teachings can strengthen ecological consciousness and encourage responsible environmental action. The study is guided by the question: How can biblical perspectives on environmental stewardship contribute to addressing Rwanda's ecological challenges?

2. Methodology

This study employed a descriptive mixed-methods research design, combining biblical-theological analysis with quantitative and qualitative approaches. The mixed-methods approach was appropriate because the study sought both to examine biblical perspectives on environmental stewardship and to assess the perceptions and attitudes of theology students regarding their relevance to Rwanda's ecological challenges. Creswell and Creswell (2018) argue that mixed-methods research enables researchers to integrate numerical evidence with participants' experiences and interpretations, while Cohen et al. (2018) emphasize its usefulness in educational and social research.

The study population consisted of 70 undergraduate students from the Faculty of Theology at the Catholic University of Rwanda. Since the population was relatively small and accessible, the study used a census sampling technique, whereby all 70 students participated in the research. This approach enabled the researcher to obtain information from the entire accessible population rather than selecting a sample. According to Etikan et al. (2016), appropriate sampling procedures should correspond to the characteristics and accessibility of the target population.

Data were collected using a structured questionnaire containing closed-ended and open-ended questions. The questionnaire focused on students' understanding of biblical creation theology, environmental stewardship, Rwanda's ecological challenges, and the role of churches in ecological transformation. In addition, documentary analysis was used to examine biblical texts, theological literature, environmental studies, and relevant scholarly publications. Documentary research is useful for establishing conceptual and theoretical foundations for social and theological inquiry (Bowen, 2009).

Quantitative data were analyzed using frequencies and percentages, while responses to open-ended questions were analyzed thematically by identifying recurring ideas and concepts. The results were presented through descriptive graphs containing categories, frequencies, and percentages. The biblical and documentary materials were interpreted through biblical-theological and contextual analysis, connecting scriptural principles with Rwanda's ecological context. Ethical principles of voluntary participation, confidentiality, and respectful treatment of respondents were

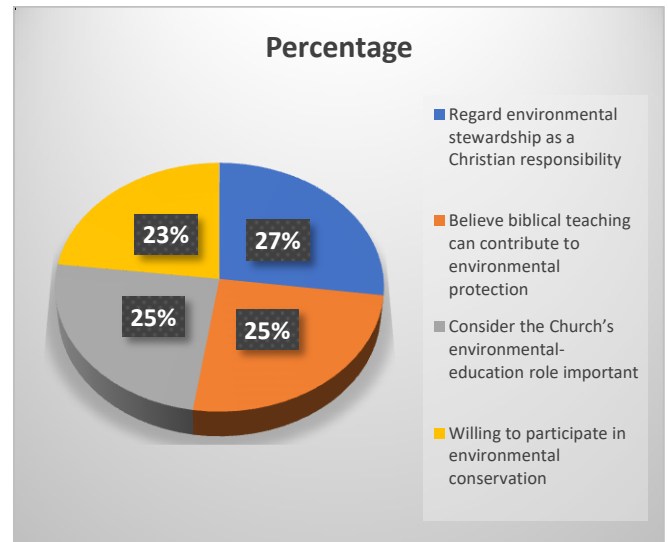
observed throughout the research process (Creswell & Creswell, 2018).

3. The Biblical Theology of Creation and Human Responsibility

The biblical theology of creation begins with the affirmation that the universe is God's work and gift. Genesis 1 presents creation as an intentional and ordered act of God, repeatedly describing what God made as "good" and ultimately "very good" (Gen. 1:31). Creation therefore possesses value not merely because of its usefulness to human beings but because it originates in God and participates in God's creative purpose. This theological perspective challenges an exclusively utilitarian understanding of nature. Moltmann (1993) argues that creation should be understood within the dynamic relationship between God, humanity, and the created world, while Bauckham (2010) emphasizes the biblical vision of creation as a community of creatures existing in relationship with God. Similarly, Pope Francis (2015) stresses that the earth is a common home whose value cannot be reduced to economic exploitation, while Kureethadam (2022) interprets ecological responsibility through the theological principle of relationality and interdependence. For Rwanda, where land, forests, wetlands, water, and biodiversity are essential to human livelihoods, understanding creation as God's gift provides an important theological basis for conservation and sustainable use.

The second dimension concerns human beings as stewards rather than absolute owners. Genesis 1:26–28 gives humanity a distinctive position within creation, but human authority should not be interpreted as unlimited domination or exploitation. Genesis 2:15 provides an important corrective by stating that humanity is placed in the garden "to till it and keep it." The Hebrew concepts associated with working and keeping the garden suggest both productive use and protective responsibility. White's (1967) influential critique of Christian attitudes toward nature warned that certain interpretations of human dominion could encourage anthropocentrism and exploitation. However, scholars such as Bauckham (2010), Horrell (2006), and Pope Francis (2015) demonstrate that biblical dominion can instead be understood as responsible participation in God's care for creation. From an environmental-sociological perspective, stewardship also recognizes that ecological systems and human societies are interconnected (Beck, 1992). Thus, Christians cannot claim absolute ownership over natural resources; they have an ethical responsibility to transmit creation responsibly to present and future generations.

The empirical findings from the 70 undergraduate students in the Faculty of Theology at the Catholic University of Rwanda reinforce this theological interpretation. The results show a relatively strong recognition of environmental responsibility among respondents.



These findings suggest that the biblical concept of stewardship is already broadly recognized among theology students, although theological formation in environmental issues remains comparatively less developed. The results are consistent with the argument of Pope Francis (2015) that ecological conversion requires changes in attitudes, lifestyles, and social practices. Kureethadam (2022) similarly emphasizes ecological education and spirituality as essential components of integral ecology. From an anthropological perspective, environmental responsibility is also shaped by cultural values, social practices, and the ways communities understand their relationship with land and nature (Descola, 2013). In the Rwandan context, therefore, biblical stewardship can enter into dialogue with existing communal values concerning land, solidarity, responsibility, and intergenerational continuity.

Finally, Genesis 1–2 provides a foundation for the mandate to cultivate and care for the earth. The biblical command is not simply permission to consume natural resources; it is a vocation requiring responsible management. Humanity's special status as *imago Dei* (Gen. 1:26–27) should therefore be understood as a moral responsibility rather than a license for ecological exploitation. This interpretation is particularly relevant to Rwanda's ecological challenges, including soil erosion, deforestation, wetland degradation, biodiversity loss, and climate-related pressures. Horrell (2006) argues that biblical ecological ethics should move beyond abstract theological claims toward concrete practices of environmental responsibility. Pope Francis (2015) likewise connects care for creation with justice, the common good, and concern for vulnerable populations. Moltmann (1993) situates human responsibility within the broader communion of creation, while Kureethadam (2022) emphasizes that ecological conversion must involve both individual and communal transformation. Consequently, biblical creation theology can provide Rwanda's Christian communities with a theological framework for transforming environmental awareness into practical stewardship through education,

conservation, sustainable resource use, and community action.

4. Biblical Principles of Environmental Stewardship

Biblical environmental stewardship is founded on the conviction that creation belongs to God and that human beings have received a responsibility to care for, protect, and use natural resources responsibly. Psalm 24:1 declares that “the earth is the Lord’s,” while Genesis 2:15 presents humanity’s vocation as cultivating and keeping the garden. This perspective challenges the idea that human beings are absolute owners of nature and instead presents them as responsible participants in God’s creative work. Moltmann (1993) understands creation as a dynamic community sustained by God, while Bauckham (2010) emphasizes the biblical vision of human beings as members of the wider community of creation. From an environmental perspective, Rockström et al. (2009) argue that human societies must operate within ecological boundaries if environmental systems are to remain sustainable. Ostrom (1990) similarly demonstrates that natural resources can be protected when communities establish systems of collective responsibility and appropriate rules for their use. This principle is particularly relevant to Rwanda, where land, forests, water, wetlands, and biodiversity are essential to livelihoods and national development. Biblical stewardship therefore provides a theological foundation for responsible agricultural practices, conservation, and sustainable resource management.

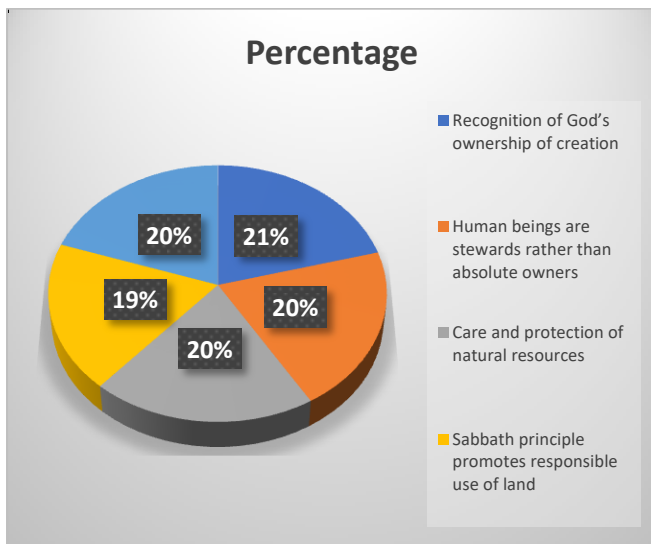
A first biblical principle is the recognition of God’s ownership of creation and human beings’ responsibility as stewards. The biblical narrative does not present humanity as possessing unlimited authority over nature. In Genesis 1:26–28, human dominion is placed within the broader framework of creation, while Genesis 2:15 clarifies that humanity is expected both to cultivate and to protect the earth. Stewardship therefore implies accountability: human beings may use creation to meet legitimate needs, but they must do so without destroying its capacity to sustain life. Pope Francis (2015) emphasizes that the earth is a common home whose resources must be protected for present and future generations. Kureethadam (2022) similarly argues that ecological conversion requires a transformation from exploitative relationships with nature toward responsible care. Descola (2013) demonstrates that relationships between human communities and the natural world are also shaped by cultural understandings, while Beck (1992) shows that environmental risks increasingly affect social structures and human well-being. For Rwanda, this principle calls for responsible management of agricultural land, forests, water resources, wetlands, and biodiversity.

A second principle concerns the protection and responsible use of natural resources. Biblical stewardship does not

prohibit the use of nature; rather, it establishes moral limits on how creation should be used. The earth provides food, water, shelter, and other resources necessary for human flourishing, but these resources should not be consumed in ways that undermine ecological sustainability. The Sabbath legislation in Exodus 23:10–11 illustrates this principle by requiring the land to rest after six years of cultivation. Leviticus 25 develops the same idea through the Sabbath year and Jubilee, thereby establishing limits on continuous exploitation. Brueggemann (2009) interprets the Sabbath as a theological challenge to unlimited production and consumption. Rockström et al. (2009) similarly demonstrate that human activities must remain within planetary boundaries, while Ostrom (1990) highlights the importance of collective rules for sustainable management of common resources. Hilty and Aebischer (2015) further show that ICT can support environmental monitoring, information sharing, and sustainable resource management. These perspectives are relevant to Rwanda’s efforts to combat soil erosion, deforestation, wetland degradation, and unsustainable land use.

The third principle is the Sabbath and the land, particularly expressed in Exodus 23:10–11 and Leviticus 25. These passages provide a theological model of ecological rest and regeneration. The land is not expected to produce continuously without interruption. The seventh-year rest recognizes that agricultural productivity must be balanced with the capacity of the soil and ecosystems to recover. Leviticus 25 also connects the restoration of the land with social justice through the Jubilee institution. The principle therefore combines ecological, economic, and social dimensions. Brueggemann (2009) explains that Sabbath challenges societies organized around endless production and accumulation. Pope Francis (2015) similarly calls for a lifestyle that recognizes ecological limits and rejects excessive consumption. From an environmental perspective, Rockström et al. (2009) emphasize that ecosystems possess limits beyond which human activities become unsustainable, while Ostrom (1990) demonstrates the importance of institutional arrangements that regulate resource use. In the Rwandan context, the Sabbath principle can inspire sustainable agriculture, soil restoration, land conservation, controlled exploitation of forests, and protection of wetlands.

The responses of the 70 undergraduate students in the Faculty of Theology at the Catholic University of Rwanda demonstrate significant recognition of these biblical principles. The findings can be organized according to the specific dimensions of biblical environmental stewardship examined in the study:



The graph indicates that 60 students (85.7%) recognize God's ownership of creation, while 59 students (84.3%) understand human beings primarily as stewards rather than absolute owners. Furthermore, 58 students (82.9%) recognize the importance of caring for and protecting natural resources. The relatively lower figure of 54 students (77.1%) concerning the Sabbath principle suggests that the ecological significance of biblical land-rest traditions may require greater theological attention. At the same time, 57 students (81.4%) affirm that justice and moderation are essential dimensions of environmental stewardship, and 56 students (80.0%) recognize responsibility toward future generations. These findings are consistent with the theological argument of Pope Francis (2015) that ecological responsibility involves justice between generations. UNESCO (2021) similarly emphasizes the importance of education in developing environmental knowledge and sustainable practices. Descola (2013) shows that ecological relationships are embedded in cultural and social systems, while Hilty and Aebischer (2015) demonstrate how digital technologies can strengthen environmental education and collective action.

A fourth principle is justice, moderation, and responsibility toward creation. Biblical stewardship cannot be separated from social justice because environmental degradation frequently affects vulnerable populations most severely. The Jubilee tradition in Leviticus 25 connects the restoration of land with economic justice, social protection, and the prevention of permanent accumulation. Biblical environmental ethics therefore requires moderation in consumption and equitable access to natural resources. Schlosberg (2007) argues that environmental justice involves distribution, recognition, and participation, while Beck (1992) demonstrates that environmental risks are socially differentiated. Sen (1999) links justice and sustainable development to people's capabilities to live dignified lives, while Pope Francis (2015) connects ecological protection with poverty reduction, human dignity, and the common good. In Rwanda, this principle is

particularly relevant to land pressure, agricultural productivity, water access, soil degradation, and climate-related vulnerabilities. Christian environmental stewardship should therefore promote responsible consumption, protection of vulnerable communities, equitable resource management, and concern for future generations.

Finally, biblical environmental stewardship should move from theological knowledge to practical ecological action. The findings indicate that theology students have a strong appreciation of biblical environmental principles, but these principles need to be translated into pastoral and community practices. The fact that 81.4% (57 students) affirm that biblical teaching can encourage environmental conservation demonstrates considerable potential for integrating ecological concerns into theological education. However, ecological theology should not remain limited to classroom discussion. Bauckham (2010) argues for recovering the biblical vision of the community of creation, while Kureethadam (2022) emphasizes ecological conversion as a transformation of attitudes and practices. UNESCO (2021) stresses the importance of education for sustainable development, and Hilty and Aebischer (2015) demonstrate the contribution of ICT to environmental awareness and sustainability initiatives. The Faculty of Theology at the Catholic University of Rwanda can therefore contribute to ecological transformation by integrating biblical environmental ethics into theological courses, seminars, pastoral formation, community outreach, and ICT-supported environmental education. Biblical stewardship consequently becomes a practical Christian vocation characterized by care, protection, sustainable use, ecological rest, justice, moderation, and responsibility toward present and future generations.

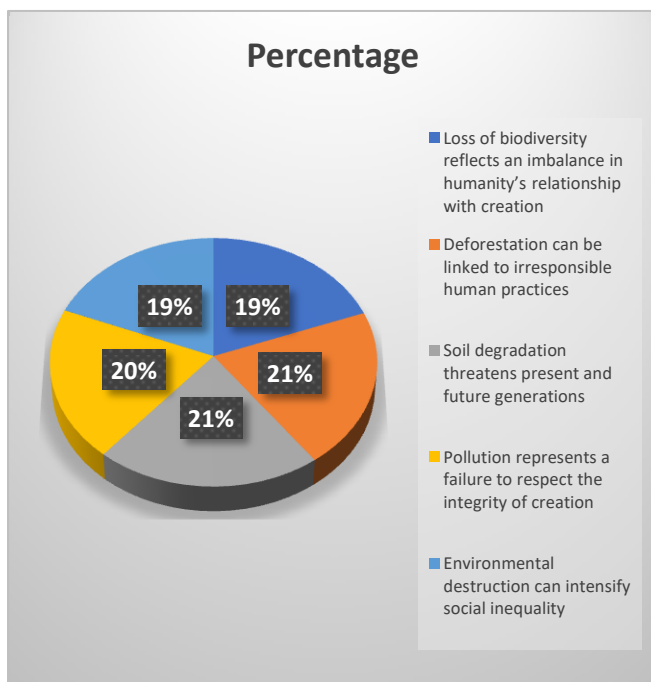
5. Human Sin, Environmental Degradation, and Ecological Consequences

Biblical perspectives on environmental degradation emphasize the relationship between human moral choices and the condition of creation. Genesis 3 presents the rupture introduced by human disobedience, with Genesis 3:17–19 describing consequences for the ground and human labor. Similarly, Hosea 4:1–3 connects moral disorder with the suffering of the land and living creatures. These passages should not be interpreted as claiming that every ecological disaster is a direct punishment for a particular sin. Rather, they establish a theological connection between human conduct and the integrity of creation. Bauckham (2010) argues that biblical ethics places humanity within a wider community of creation, while Moltmann (1993) understands ecological responsibility within humanity's relationship with God and the created world. Rockström et al. (2009) demonstrate that unsustainable human activities can push ecological systems beyond safe boundaries, while Beck (1992) explains that environmental risks are largely produced through human social and economic systems.

Environmental degradation is therefore not merely a technical problem but also a moral, theological, social, and ecological challenge.

Human choices have concrete consequences, including deforestation, biodiversity loss, soil degradation, and pollution. The biblical vision of creation recognizes the diversity and value of living beings (Gen. 1:20–25), while Genesis 2:15 calls humanity to cultivate and protect the earth. Pope Francis (2015) argues that ecological destruction is closely connected to unsustainable patterns of production and consumption. Descola (2013) demonstrates that relationships between human societies and nature are shaped by cultural understandings, while Ostrom (1990) emphasizes collective responsibility in managing common resources. In Rwanda, these concerns are particularly relevant because land, forests, wetlands, and biodiversity are essential to livelihoods and sustainable development. Deforestation and inappropriate land use can accelerate erosion and habitat loss, while pollution can affect water quality and human well-being. Hilty and Aebischer (2015) further show that ICT can contribute to environmental monitoring, information sharing, and sustainable resource management.

The responses of the 70 undergraduate students in the Faculty of Theology at the Catholic University of Rwanda demonstrate significant awareness of these ecological consequences:



The results indicate that 61 students (87.1%) recognize soil degradation as a threat to present and future generations, while 59 (84.3%) associate deforestation with irresponsible human practices. Furthermore, 57 students (81.4%) regard pollution as a failure to respect creation, and 55 (78.6%) recognize biodiversity loss as evidence of an imbalance between humanity and nature. These findings suggest that theology students generally understand environmental

degradation as involving ethical and spiritual dimensions. Pope Francis (2015) emphasizes that ecological crises are inseparable from human attitudes and social systems, while Schlosberg (2007) demonstrates that environmental degradation also raises questions of justice. UNESCO (2021) stresses the role of education in transforming environmental knowledge into responsible action.

The biblical perspective also highlights social and intergenerational consequences. Environmental degradation often affects vulnerable communities disproportionately, making ecological responsibility a matter of justice. Leviticus 25 connects land management with social protection, while the prophetic tradition condemns exploitation and injustice. Sen (1999) links justice with people's capabilities to live dignified lives, and Beck (1992) shows how environmental risks are socially differentiated. The finding that 54 students (77.1%) associate environmental destruction with social inequality demonstrates awareness of this connection. Similarly, 56 students (80.0%) believe Christian repentance should involve changes in ecological behavior. This supports Kureethadam's (2022) emphasis on ecological conversion as a transformation of attitudes and lifestyles.

Finally, biblical teaching calls for ecological repentance and restoration. If irresponsible human actions contribute to environmental degradation, Christian response should include transformation, responsible resource use, and restoration of damaged ecosystems. Pope Francis (2015) calls for ecological conversion, while Bauckham (2010) advocates recovering the biblical vision of humanity as part of the community of creation. The finding that 58 students (82.9%) understand ecological restoration as a Christian responsibility indicates strong support for this approach. For Rwanda, ecological conversion can be expressed through tree planting, soil conservation, wetland protection, biodiversity conservation, responsible waste management, and environmental education. Biblical perspectives therefore provide a framework in which environmental protection becomes an expression of repentance, justice, stewardship, and responsibility toward present and future generations.

6. Rwanda's Major Ecological Challenges

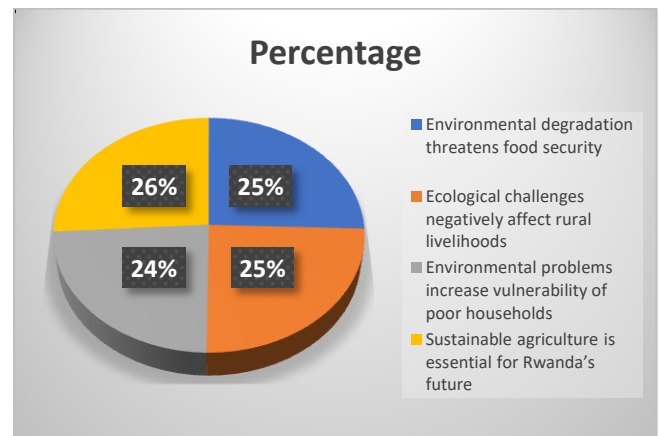
Rwanda's ecological challenges have significant implications for food security, livelihoods, social well-being, and sustainable development. Although environmental problems include soil erosion, land degradation, deforestation, biodiversity loss, wetland degradation, pollution, flooding, and climate change, their consequences extend into economic and social life. Rwanda's dependence on agriculture and limited availability of productive land make environmental sustainability particularly important. Rockström et al. (2009) emphasize the need for societies to remain within ecological boundaries, while Ostrom (1990) demonstrates the importance of collective institutions in managing natural

resources. Beck (1992) argues that environmental risks are socially produced and unevenly experienced, while Descola (2013) highlights the importance of cultural relationships between human communities and their environments. From this perspective, Rwanda's ecological challenges should be addressed through an integrated approach involving environmental protection, sustainable livelihoods, community participation, education, and responsible stewardship.

One major consequence of ecological degradation is its impact on food security. Soil erosion, declining soil fertility, irregular rainfall, land degradation, and changing climatic conditions can reduce agricultural productivity and increase vulnerability among farming households. Because agriculture remains central to the livelihoods of many Rwandans, environmental deterioration can directly affect access to food and household income. Sen (1999) explains that development must expand people's capabilities to secure sustainable livelihoods, while Rockström et al. (2009) emphasize the relationship between ecological stability and human well-being. Pope Francis (2015) similarly links care for the environment with concern for food security and vulnerable populations. From a sociological perspective, Beck (1992) shows that environmental risks can become social risks when they threaten people's basic livelihoods. Sustainable agriculture, soil conservation, agroforestry, water management, and climate-resilient farming are therefore essential responses to Rwanda's ecological challenges.

A second dimension concerns the effects of environmental degradation on rural livelihoods and social vulnerability. Environmental deterioration can reduce agricultural productivity, increase household expenses, and intensify competition over land and natural resources. Poorer households may be particularly vulnerable because they depend more directly on natural resources for their livelihoods. Schlosberg (2007) argues that environmental justice involves not only the distribution of environmental benefits and burdens but also recognition and participation. Beck (1992) similarly demonstrates that environmental risks are not experienced equally across society. Pope Francis (2015) emphasizes that environmental and social crises are interconnected, while Descola (2013) shows that relationships between communities and nature are embedded in social and cultural systems. In Rwanda, addressing ecological challenges therefore requires policies and practices that protect vulnerable communities while promoting sustainable access to land, water, forests, and other resources.

The responses of the 70 undergraduate students in the Faculty of Theology at the Catholic University of Rwanda reveal strong awareness of these social and developmental dimensions:



The results show that 63 students (90.0%) consider sustainable agriculture essential for Rwanda's future, while 64 (91.4%) emphasize the importance of community participation in environmental protection. Furthermore, 62 students (88.6%) recognize the relationship between environmental degradation and food security, and 58 (82.9%) believe that environmental problems increase the vulnerability of poor households. These findings indicate that theology students understand ecological challenges as issues that extend beyond the physical environment to include social justice, livelihoods, and human development. UNESCO (2021) emphasizes the importance of education for sustainable development, while Ostrom (1990) highlights collective participation in environmental governance. Sen (1999) similarly associates sustainable development with human capabilities, and Pope Francis (2015) emphasizes the inseparability of environmental protection and social well-being.

Sustainable agriculture and responsible land management are therefore essential for responding to Rwanda's ecological challenges. Agricultural practices that conserve soil, protect water, maintain biodiversity, and improve land productivity can contribute to both environmental sustainability and food security. The biblical principle of allowing the land to rest (Exod. 23:10–11; Lev. 25:1–7) provides a theological perspective that challenges unlimited exploitation of agricultural resources. Brueggemann (2009) interprets Sabbath as resistance to excessive production and consumption, while Moltmann (1993) emphasizes humanity's responsibility within the wider community of creation. Rockström et al. (2009) highlight the ecological limits within which human development must operate, while Ostrom (1990) emphasizes community-based resource management. The finding that 90.0% (63 students) recognize sustainable agriculture as essential suggests an important opportunity for integrating ecological theology with practical agricultural and community initiatives.

Another important response is community participation and environmental education. Environmental protection cannot depend exclusively on government institutions; it requires active participation from households, schools, churches, universities, local organizations, and young people. The

finding that 91.4% (64 students) consider community participation necessary demonstrates strong support for a collective approach. Similarly, 87.1% (61 students) believe that environmental education can strengthen ecological responsibility. UNESCO (2021) identifies education as a major instrument for developing sustainable values and practices, while Hilty and Aebischer (2015) show how ICT can support environmental education, communication, monitoring, and information sharing. Ostrom (1990) emphasizes the importance of collective action, while Descola (2013) demonstrates that environmental relationships are embedded in cultural practices. In Rwanda, digital platforms, community training, theological education, and environmental campaigns could therefore complement traditional conservation initiatives.

The findings also point to the potential contribution of churches and young people. 59 students (84.3%) believe that churches can contribute to solving environmental problems, while 65 (92.9%) believe that young people should participate actively in environmental conservation. This is significant for the Faculty of Theology because future priests, pastoral agents, and Christian educators can influence ecological attitudes within parishes and communities. Pope Francis (2015) calls for ecological conversion that transforms individual and collective behavior, while Kureethadam (2022) emphasizes the spiritual dimension of ecological transformation. Bauckham (2010) argues for recovering the biblical understanding of humanity as part of the community of creation, while UNESCO (2021) highlights the importance of empowering young people through environmental education. Theology students can therefore become ecological educators, advocates, and community mobilizers.

In conclusion, Rwanda's ecological challenges should be understood through their environmental, social, economic, educational, and spiritual dimensions. The findings suggest that theology students recognize the consequences of environmental degradation for food security, livelihoods, vulnerable populations, and future generations. They also strongly support sustainable agriculture, community participation, environmental education, church involvement, and youth engagement. Consequently, responding to Rwanda's ecological challenges requires not only technical environmental measures but also a transformation of attitudes and values. Biblical environmental stewardship can contribute to this transformation by promoting responsibility, justice, moderation, solidarity, and care for creation.

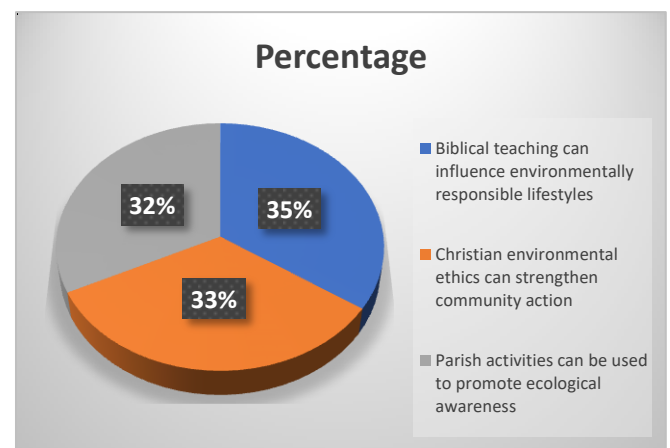
7. The Relevance of Biblical Stewardship to Rwanda's Environmental Context

Biblical stewardship has practical relevance to Rwanda's environmental context because it provides an ethical framework for shaping human attitudes, lifestyles,

community practices, and long-term responsibility toward creation. Rather than understanding the earth merely as a collection of resources, biblical stewardship presents human beings as accountable caretakers of God's creation (Gen. 2:15; Ps. 24:1). This perspective is particularly relevant to Rwanda, where environmental sustainability is closely connected with agriculture, population growth, natural-resource management, and long-term development. Pope Francis (2015) argues that ecological responsibility requires changes in lifestyles and social relationships, while Moltmann (1993) emphasizes humanity's responsibility within the wider community of creation. Ostrom (1990) demonstrates the importance of collective action in managing shared resources, and Descola (2013) shows that relationships between people and nature are also shaped by cultural values and social practices. Biblical stewardship can therefore contribute to Rwanda not only through environmental conservation but also through the transformation of values and behaviors.

One important area is the development of environmentally responsible lifestyles. Biblical teaching encourages moderation, gratitude, restraint, and responsible use of material resources. The principles of Sabbath, simplicity, and care for creation challenge lifestyles characterized by waste, excessive consumption, and disregard for ecological consequences. Brueggemann (2009) interprets Sabbath as resistance to unlimited production and consumption, while Kureethadam (2022) presents ecological conversion as a transformation of attitudes and everyday practices. From an environmental perspective, Rockström et al. (2009) demonstrate the need to maintain human activities within ecological limits, while Sen (1999) emphasizes development that improves human well-being without undermining the foundations of future development. In Rwanda, this can involve responsible consumption, waste reduction, water conservation, tree planting, energy efficiency, and sustainable agricultural practices.

The empirical responses of the 70 undergraduate students from the Faculty of Theology at the Catholic University of Rwanda demonstrate strong support for connecting biblical teaching with practical environmental responsibility.



The findings indicate that 62 students (88.6%) believe biblical teaching can influence environmentally responsible lifestyles, while 63 (90.0%) recognize the importance of environmental stewardship for future generations. Furthermore, 65 students (92.9%) believe that ecological responsibility should form part of Christian social teaching. These results suggest that respondents perceive environmental stewardship as more than a technical or governmental responsibility. Pope Francis (2015) similarly argues that ecological conversion requires changes in personal and collective behavior, while UNESCO (2021) emphasizes education as a means of developing sustainable values. Hilty and Aebischer (2015) demonstrate that ICT can strengthen environmental education and communication, while Ostrom (1990) emphasizes collective responsibility in achieving sustainable resource management.

Christian community action represents another important avenue through which biblical stewardship can contribute to Rwanda's environmental objectives. Churches are present in many communities and can mobilize people around common concerns. The finding that 60 students (85.7%) believe Christian environmental ethics can strengthen community action demonstrates the potential for churches to become partners in ecological initiatives. Such action could include tree-planting campaigns, community clean-up activities, water protection, soil conservation, environmental awareness programmes, and support for vulnerable households affected by environmental degradation. Bauckham (2010) emphasizes that biblical creation theology calls humanity to recognize its membership within the wider community of creation. Ostrom (1990) stresses the importance of collective participation, while Descola (2013) highlights the role of cultural values in shaping relationships with nature. Pope Francis (2015) similarly encourages local communities to participate actively in caring for the common home.

Parish activities and theological education can provide particularly effective platforms for ecological formation. The finding that 58 students (82.9%) believe parish activities can promote ecological awareness suggests that environmental stewardship can become part of ordinary pastoral ministry. Homilies, catechesis, youth groups, parish associations, Bible-study groups, and community outreach can integrate biblical perspectives on creation with practical environmental responsibilities. Moreover, 61 students (87.1%) support including practical environmental activities within theological education. This is important because future priests and pastoral agents can influence Christian attitudes toward environmental responsibility. Kureethadam (2022) emphasizes the need for ecological conversion within Christian formation, while Bauckham (2010) advocates a renewed biblical understanding of humanity's place within creation. UNESCO (2021) highlights the importance of education for sustainable development, while Hilty and

Aebischer (2015) demonstrate how digital technologies can facilitate environmental learning and communication.

Another important contribution concerns Christian leadership and sustainable development. The finding that 59 students (84.3%) believe Christian leaders can influence attitudes toward sustainable development indicates that priests, theologians, catechists, and other pastoral leaders can play a significant educational and motivational role. Christian leaders can connect environmental responsibility with biblical teachings on justice, solidarity, moderation, and concern for future generations. This is particularly relevant to Rwanda's Vision 2050, which seeks long-term transformation, resilience, and sustainable development. Pope Francis (2015) argues for an integral ecology in which environmental, economic, social, and ethical concerns are addressed together. Sen (1999) similarly emphasizes development that expands human capabilities, while Rockström et al. (2009) underline the ecological limits within which development must occur. Moltmann (1993) provides the theological foundation for understanding creation as a reality entrusted to humanity but ultimately belonging to God.

The principle of intergenerational responsibility is especially significant for Rwanda's environmental future. The finding that 63 students (90.0%) recognize this responsibility indicates strong awareness that present environmental decisions affect future generations. Biblical stewardship therefore challenges present generations to avoid exhausting resources or damaging ecosystems for short-term benefit. The Sabbath and Jubilee traditions provide theological support for restraint, restoration, and responsible use of land (Exod. 23:10–11; Lev. 25). Brueggemann (2009) interprets these principles as resistance to unlimited exploitation, while Kureethadam (2022) emphasizes ecological conversion as a responsibility toward the future. Pope Francis (2015) stresses that ecological responsibility includes concern for those who will inherit the earth, while Ostrom (1990) demonstrates the importance of institutions capable of sustaining resources over time.

Finally, biblical stewardship can support partnership between faith-based initiatives and Rwanda's national environmental programmes. The finding that 57 students (81.4%) believe faith-based initiatives can complement government environmental programmes indicates potential for collaboration. Churches and theological institutions do not replace government environmental policies; rather, they can reinforce them through education, moral formation, community mobilization, and practical action. Environmental stewardship can consequently be incorporated into Christian social teaching and pastoral planning. The finding that 65 students (92.9%) support this integration provides strong evidence of theological interest in ecological responsibility. Pope Francis (2015), UNESCO (2021), Ostrom (1990), and Hilty and Aebischer (2015) all

emphasize, from different perspectives, the importance of education, collective action, institutional cooperation, and technological support for sustainability.

In conclusion, the relevance of biblical stewardship to Rwanda extends beyond the protection of individual natural resources. It encompasses responsible lifestyles, community participation, parish activities, theological education, Christian leadership, intergenerational responsibility, institutional collaboration, and Christian social teaching. The responses of the 70 theology students demonstrate strong support for these dimensions. Biblical stewardship can therefore serve as a theological resource for strengthening ecological consciousness and encouraging practical environmental action. When connected with Rwanda's development priorities and Vision 2050, it can help position the Church and theological institutions as meaningful partners in building a sustainable, responsible, and ecologically resilient Rwanda.

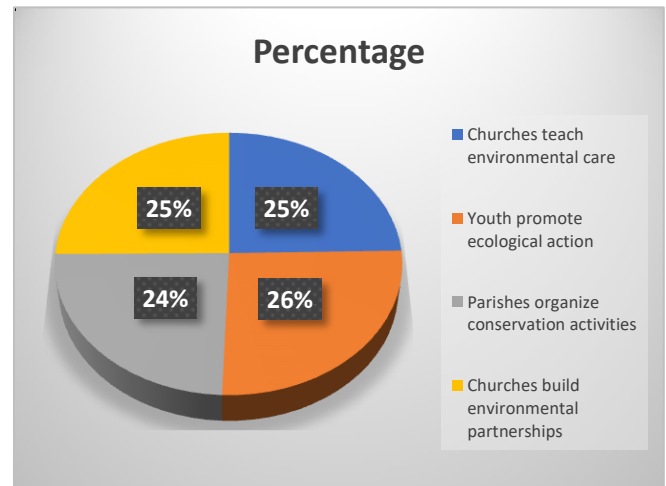
8. The Role of Churches and Christian Communities in Ecological Transformation

Churches and Christian communities can play an important role in Rwanda's ecological transformation by integrating environmental responsibility into pastoral ministry, Christian formation, and community action. Biblical stewardship presents creation as God's gift and entrusts human beings with the responsibility to cultivate and protect it (Gen. 2:15). Pope Francis (2015) emphasizes that ecological conversion requires a transformation of attitudes and lifestyles, while Bauckham (2010) places humanity within the wider community of creation. Ostrom (1990) highlights the importance of collective action in managing common resources, and Descola (2013) demonstrates that relationships between communities and nature are shaped by cultural values. Consequently, churches can contribute to ecological transformation by forming consciences, mobilizing communities, and encouraging practical environmental responsibility.

Environmental education and formation of ecological consciousness are particularly important. Through catechesis, preaching, Bible studies, youth groups, theological education, and parish seminars, churches can connect biblical teaching with contemporary ecological concerns. Kureethadam (2022) emphasizes ecological conversion as a transformation of Christian attitudes and practices, while UNESCO (2021) identifies education as a fundamental instrument for developing sustainable values. Hilty and Aebischer (2015) demonstrate that ICT can facilitate environmental education, communication, and knowledge sharing, while Pope Francis (2015) calls for an ecological culture that transforms individual and collective behavior. The Church can therefore help Christians understand that care for creation is not separate from

Christian faith but constitutes an important dimension of Christian responsibility.

The responses of the 70 undergraduate students from the Faculty of Theology at the Catholic University of Rwanda indicate strong support for the contribution of churches and Christian communities to ecological transformation:



The results show that 65 students (92.9%) believe Christians should practice ecological spirituality, while 64 (91.4%) believe that young people can promote ecological action. Furthermore, 62 students (88.6%) support environmental partnerships involving churches. These findings indicate that respondents understand ecological transformation as requiring both spiritual formation and practical community engagement. Ostrom (1990) emphasizes the importance of collective participation in environmental management, while Rockström et al. (2009) demonstrate the need for coordinated responses to ecological pressures. Sen (1999) connects sustainable development with human well-being and social capabilities, while Schlosberg (2007) emphasizes participation and justice in environmental governance.

Churches can translate environmental awareness into practical initiatives such as tree planting, forest conservation, wetland protection, water conservation, waste management, soil protection, and sustainable agricultural practices. The finding that 60 students (85.7%) believe parishes can organize conservation activities demonstrates the potential for integrating environmental action into ordinary pastoral life. Parish communities can establish environmental groups, organize ecological campaigns, encourage responsible waste management, and cooperate with local authorities. Pope Francis (2015) emphasizes dialogue and collaboration in responding to ecological challenges, while Hilty and Aebischer (2015) highlight the contribution of technology and innovation to sustainability. UNESCO (2021) stresses collaborative environmental learning, while Ostrom (1990) demonstrates the importance of community participation in sustainable resource management.

Partnerships between churches, universities, government institutions, and local communities can further strengthen ecological transformation. Universities can provide scientific knowledge and research, government institutions can provide policies and technical frameworks, while churches can contribute moral formation and community mobilization. The finding that 62 students (88.6%) support environmental partnerships indicates strong recognition of the value of collaboration. Such partnerships could involve environmental seminars, community research, tree-planting campaigns, biodiversity conservation, climate-awareness programmes, and sustainable agriculture initiatives. Descola (2013) emphasizes the social and cultural dimensions of human-environment relationships, while Rockström et al. (2009) underline the need for integrated approaches to ecological sustainability. Pope Francis (2015) and Sen (1999) likewise support approaches that connect environmental responsibility with social development and human well-being.

Finally, churches can develop an ecological spirituality that connects faith, justice, human dignity, and care for creation. Environmental degradation is not only an ecological issue; it also affects vulnerable populations, livelihoods, health, and future generations. Pope Francis (2015) argues that the ecological and social crises are deeply interconnected, while Kureethadam (2022) presents ecological conversion as a spiritual and ethical transformation. Bauckham (2010) emphasizes the interconnectedness of creation and humanity's responsibility within it, while Schlosberg (2007) demonstrates the importance of environmental justice, recognition, and participation. The finding that 65 students (92.9%) support ecological spirituality demonstrates strong potential for integrating environmental responsibility into Christian social teaching and pastoral formation.

In conclusion, churches and Christian communities can become important agents of ecological transformation in Rwanda through environmental education, youth engagement, parish conservation activities, institutional partnerships, and ecological spirituality. The findings from the 70 theology students demonstrate substantial support for these roles. By connecting biblical faith with environmental justice, human dignity, sustainable development, and practical conservation, the Church can contribute meaningfully to Rwanda's environmental objectives and the long-term vision of a sustainable and resilient society.

9. Conclusion

This study examined biblical perspectives on environmental stewardship and their relevance to Rwanda's ecological challenges, focusing on 70 undergraduate students from the Faculty of Theology at the Catholic University of Rwanda. The findings demonstrate that biblical teaching provides a meaningful theological foundation for environmental responsibility. A large majority of respondents recognized environmental stewardship as a Christian responsibility

(87.1%) and affirmed the potential contribution of biblical teaching to environmental protection (81.4%). The study also established that ecological challenges in Rwanda, including soil erosion, land degradation, deforestation, biodiversity loss, wetland degradation, pollution, flooding, climate change, and population pressure, require responses that combine environmental, social, ethical, and spiritual perspectives. Biblical principles of creation, stewardship, justice, moderation, Sabbath, and responsibility toward future generations can therefore complement Rwanda's environmental and development priorities. The study further demonstrates the potential role of churches, universities, theological institutions, and Christian communities in promoting ecological consciousness and practical environmental action.

First, the Faculty of Theology at the Catholic University of Rwanda should strengthen ecological theology by integrating environmental stewardship, biblical ecology, and ecological ethics into relevant courses and practical formation. Second, churches should incorporate environmental education into pastoral activities, including catechesis, preaching, youth formation, and parish programmes. Third, Christian communities should organize practical ecological initiatives, including tree planting, soil conservation, wetland protection, biodiversity conservation, waste management, and water protection. Fourth, partnerships among churches, universities, government institutions, and local communities should be strengthened to combine theological, scientific, technological, and community knowledge. Fifth, environmental stewardship should be connected with Rwanda's Vision 2050 and sustainable development priorities, particularly through youth engagement and community-based initiatives. Finally, future research should involve larger and more diverse populations to examine how theological environmental awareness translates into actual ecological practices and long-term behavioral change.

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